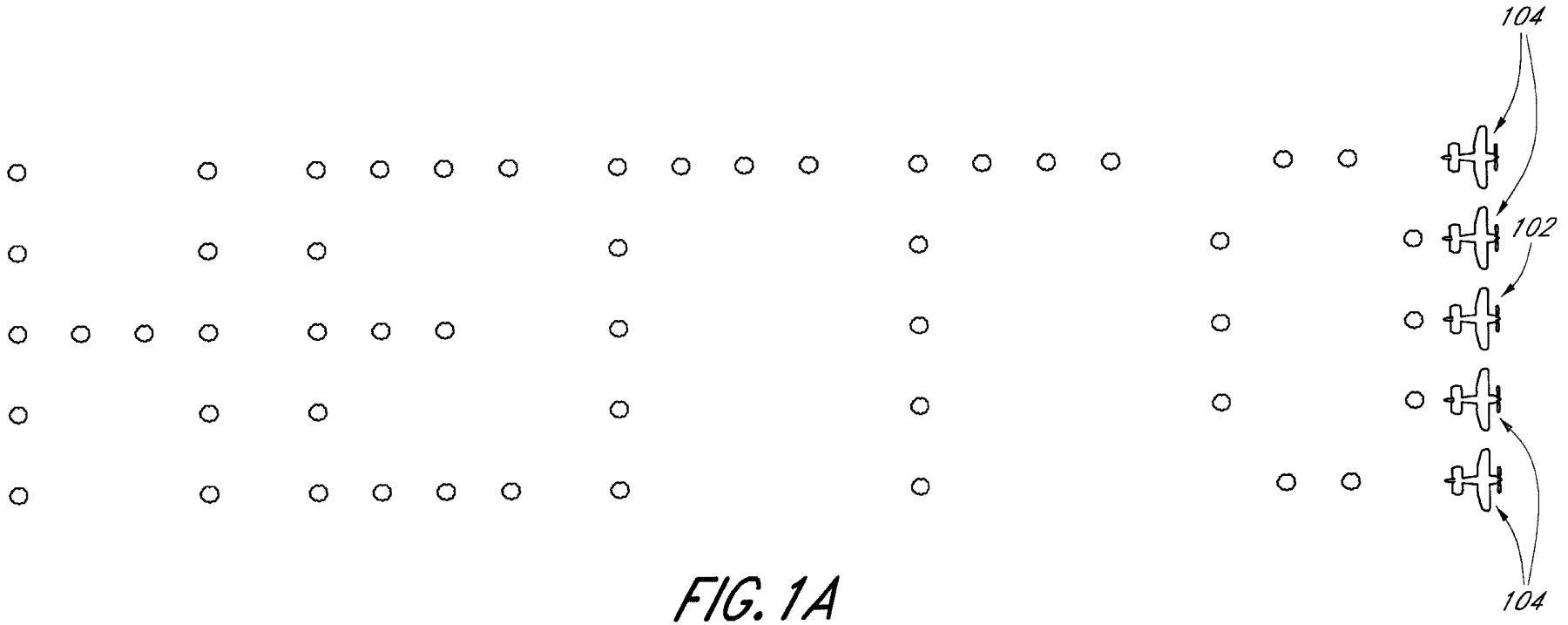


FIG. 1A

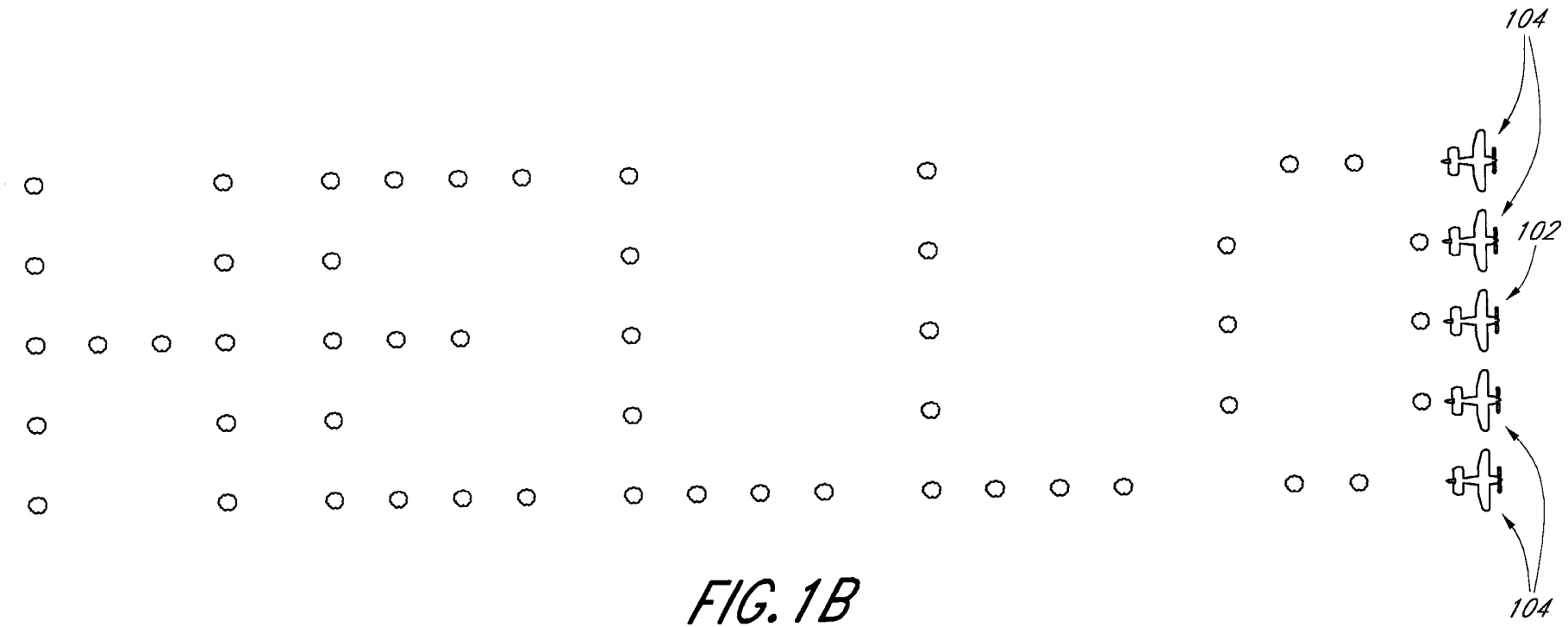


FIG. 1B

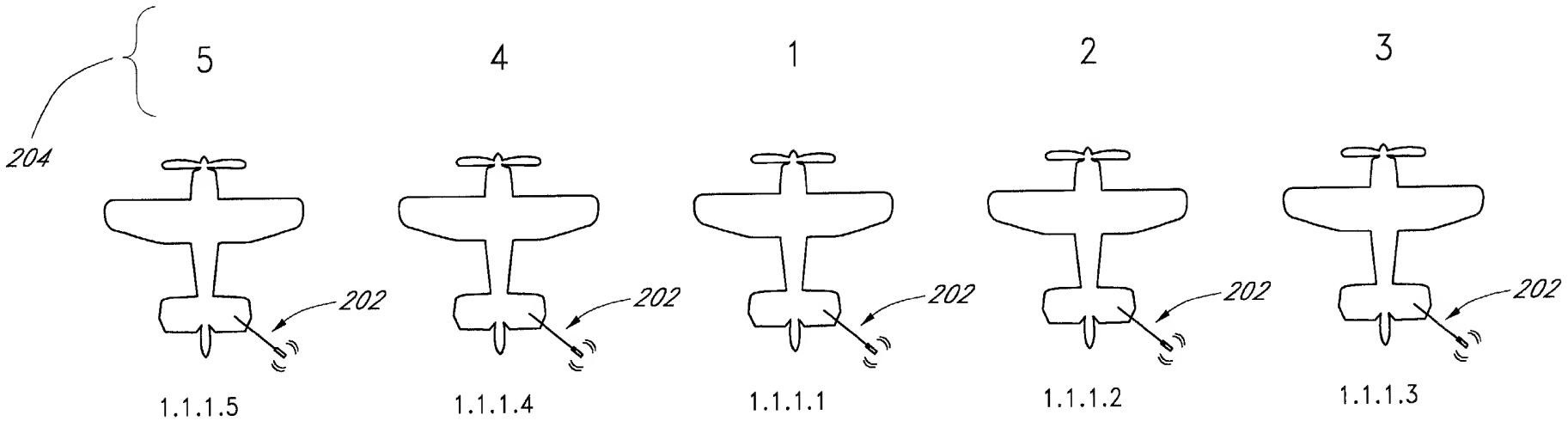


FIG.2

Tecnar 6854260

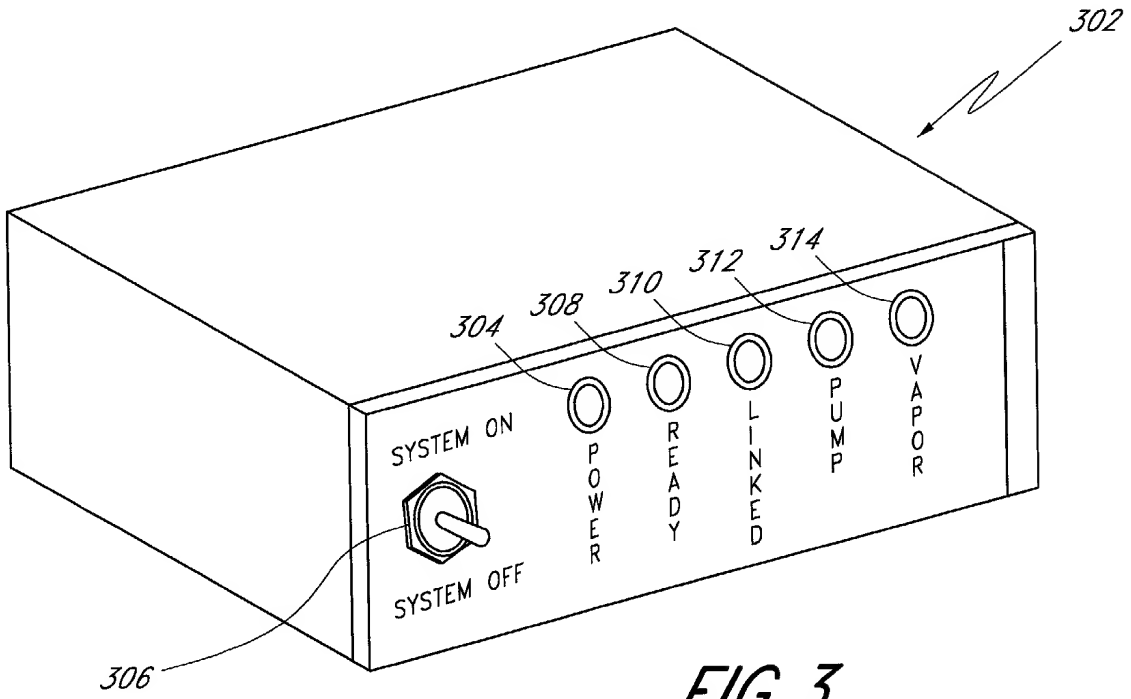


FIG. 3

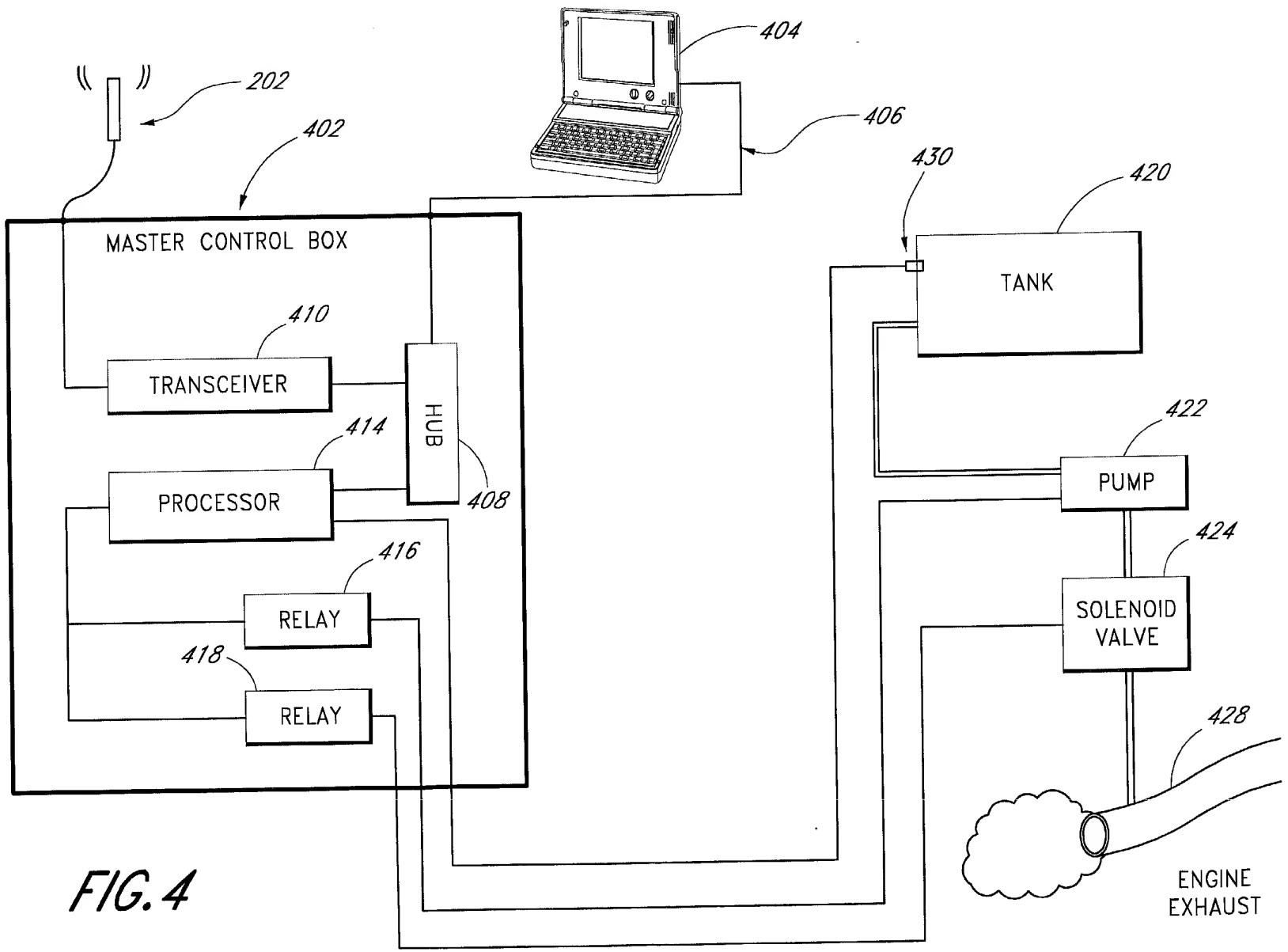

404
202
406
402
430
420
MASTER CONTROL BOX
TANK
410
TRANSCEIVER
HUB
422
414
PROCESSOR
PUMP
408
424
416
RELAY
SOLENOID VALVE
418
RELAY
428
ENGINE EXHAUST

FIG. 4

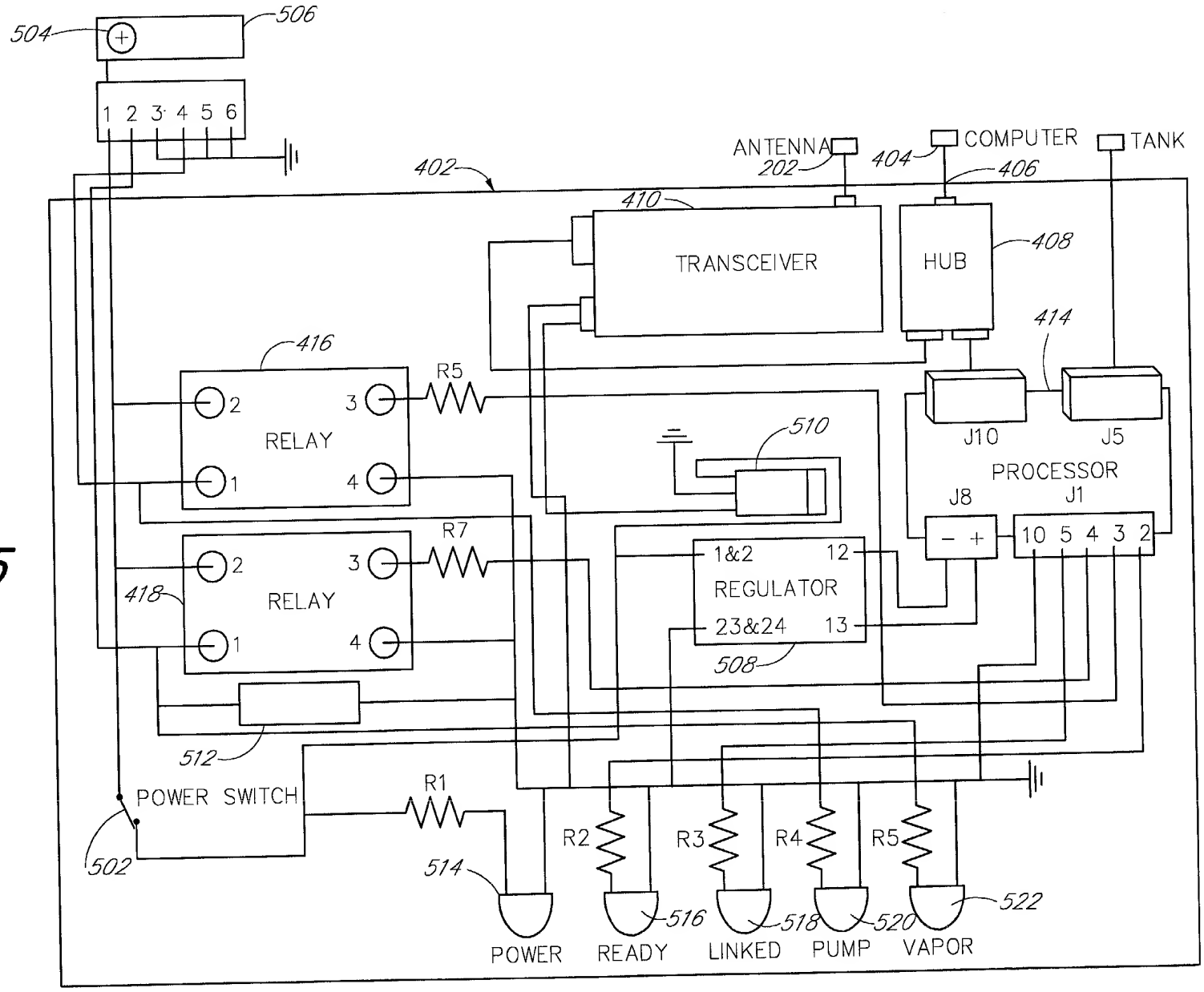

504
506
1 2 3 4 5 6
402
ANTENNA
202
404
COMPUTER
406
TANK
410
TRANSCEIVER
HUB
408
414
416
R5
2
3
RELAY
1
4
J10
J5
PROCESSOR
510
J8
J1
R7
418
1&2
12
REGULATOR
23&24
13
508
512
POWER SWITCH
R1
502
514
R2
R3
R4
R5
516
518
520
522
POWER
READY
LINKED
PUMP
VAPOR

FIG. 5

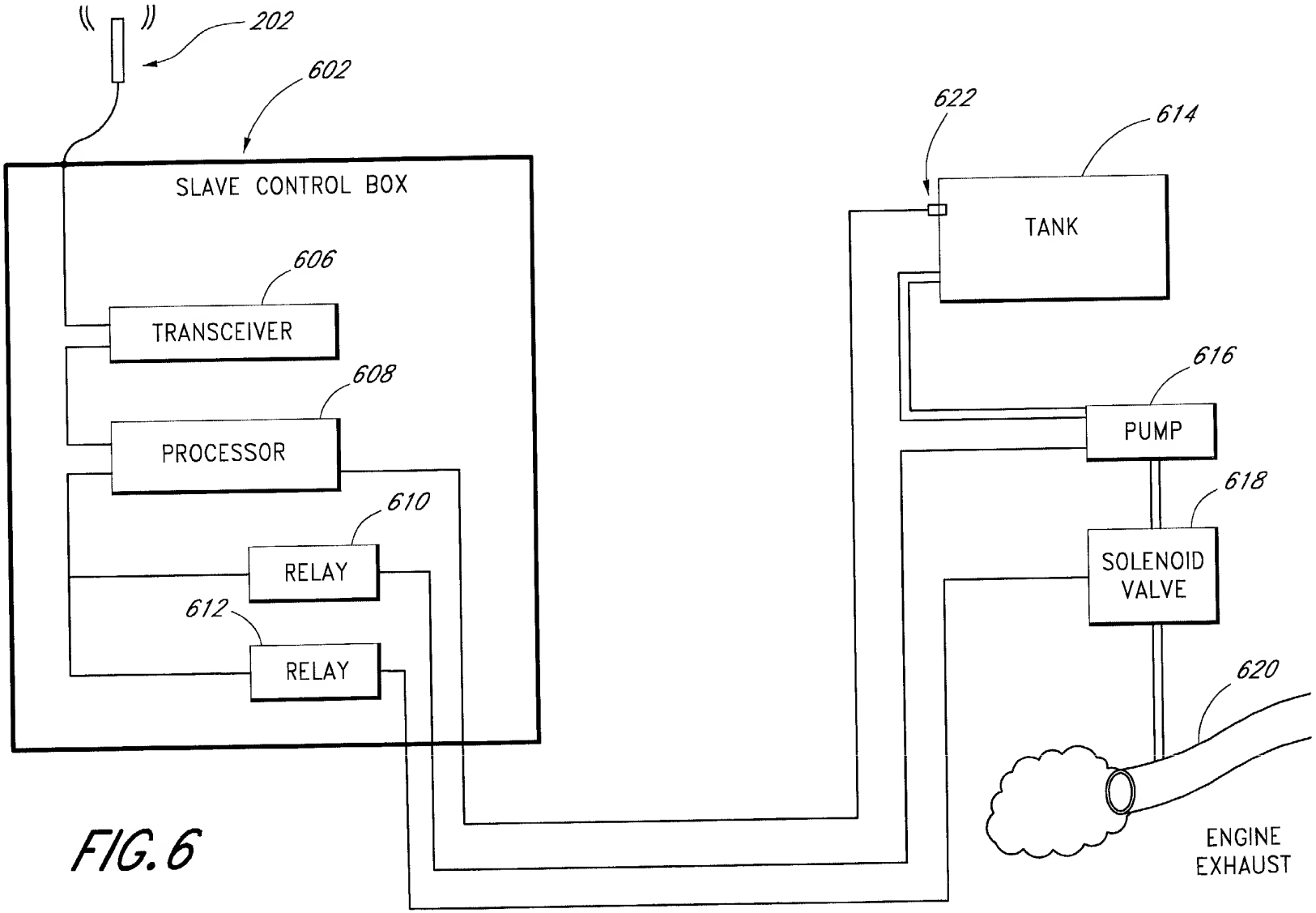

202
602
SLAVE CONTROL BOX
606
TRANSCEIVER
608
PROCESSOR
610
RELAY
612
RELAY
622
614
TANK
616
PUMP
618
SOLENOID VALVE
620
ENGINE EXHAUST

FIG. 6

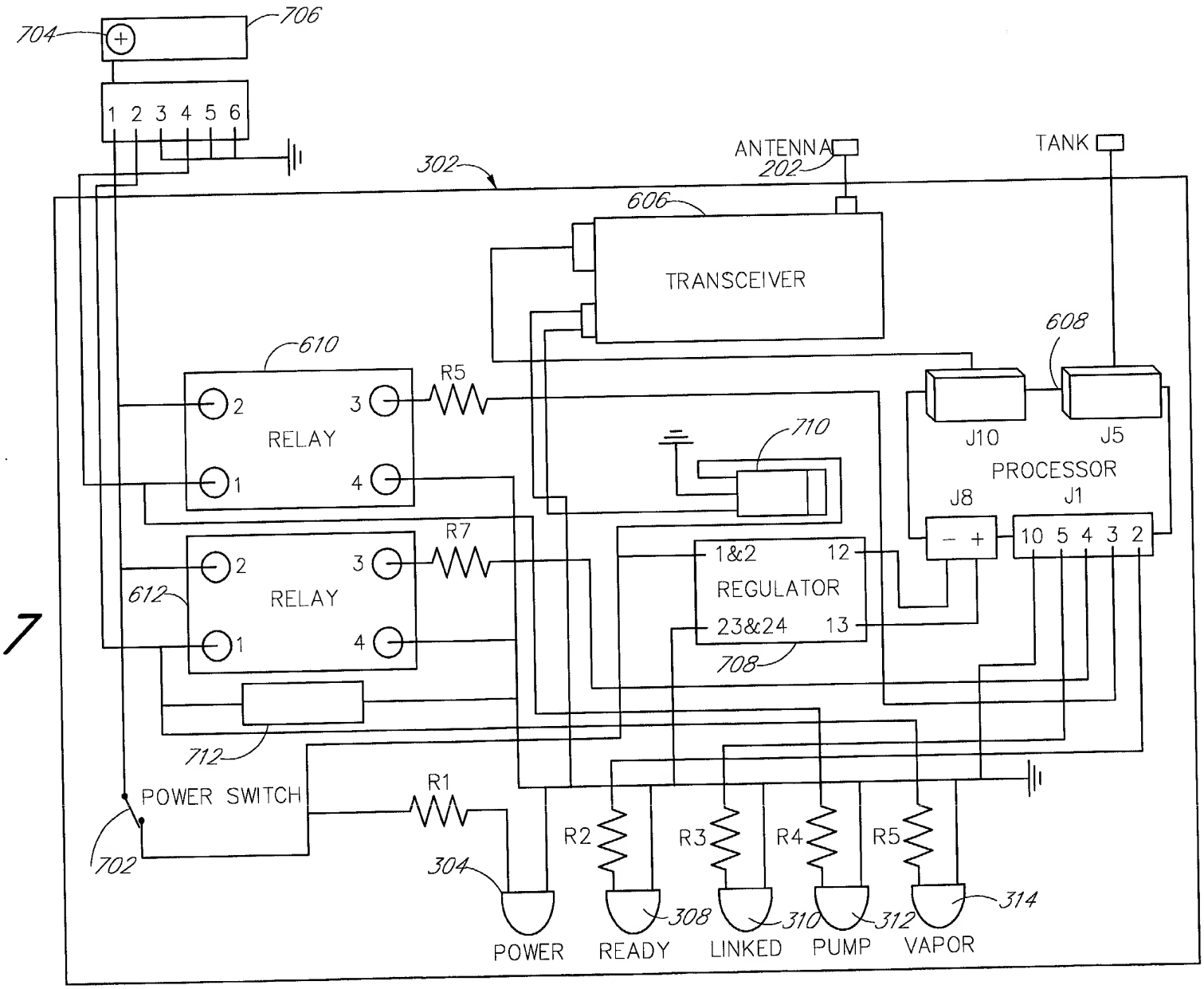
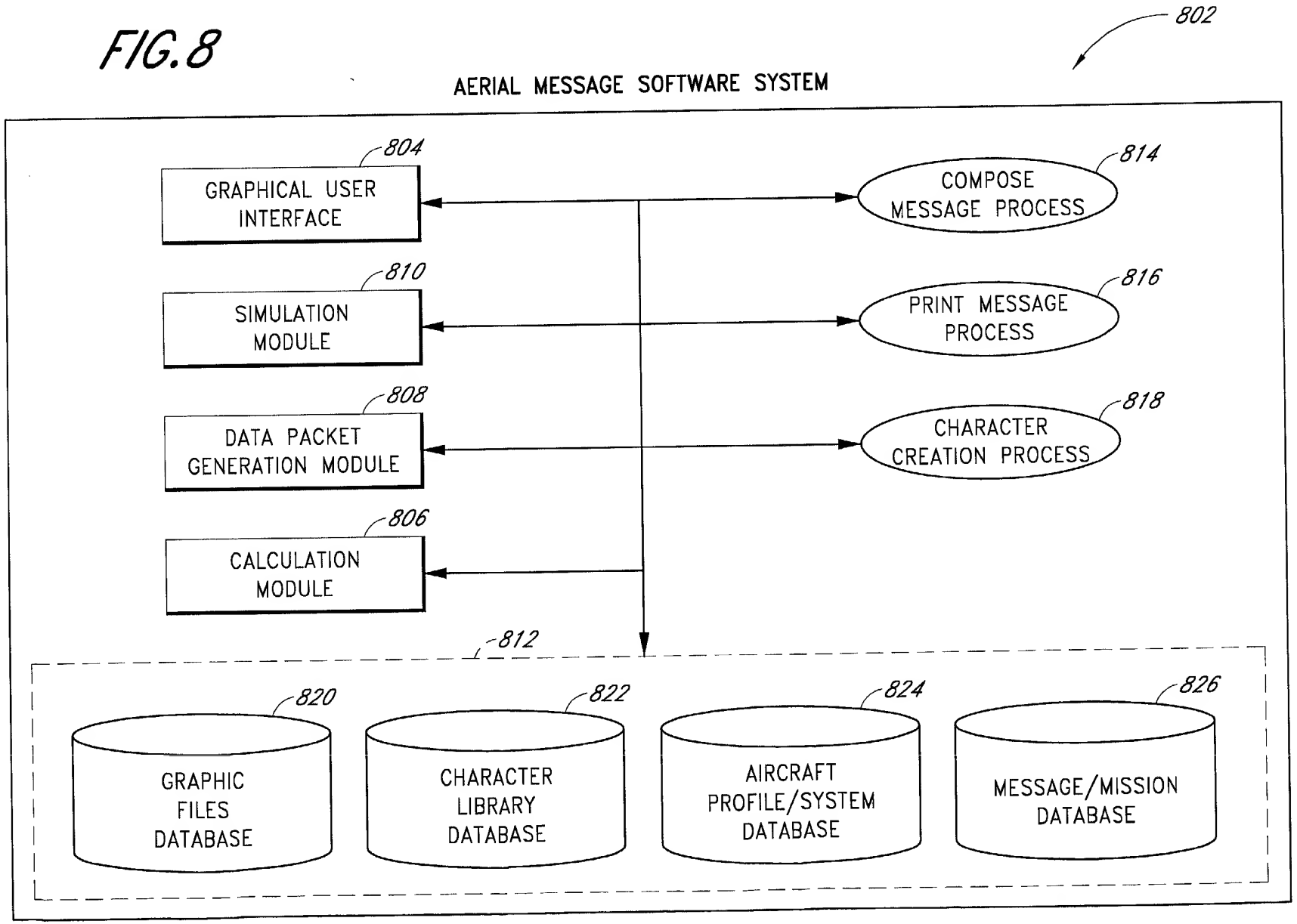

704
706
1 2 3 4 5 6
302
ANTENNA
202
TANK
606
TRANSCEIVER
608
610
R5
2
3
RELAY
1
4
710
J10
J5
PROCESSOR
J8
J1
R7
1&2
12
REGULATOR
23&24
13
612
RELAY
708
712
POWER SWITCH
R1
R2
R3
R4
R5
702
304
308
310
312
314
POWER
READY
LINKED
PUMP
VAPOR

FIG. 7

TRIDENT-CSCI-2850

FIG. 8



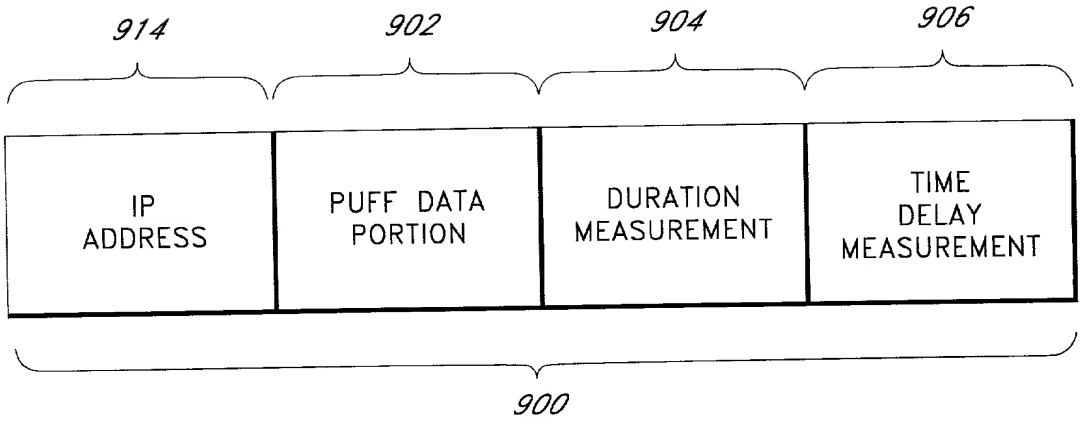

914
902
904
906
IP ADDRESS
PUFF DATA PORTION
DURATION MEASUREMENT
TIME DELAY MEASUREMENT
900

FIG. 9A

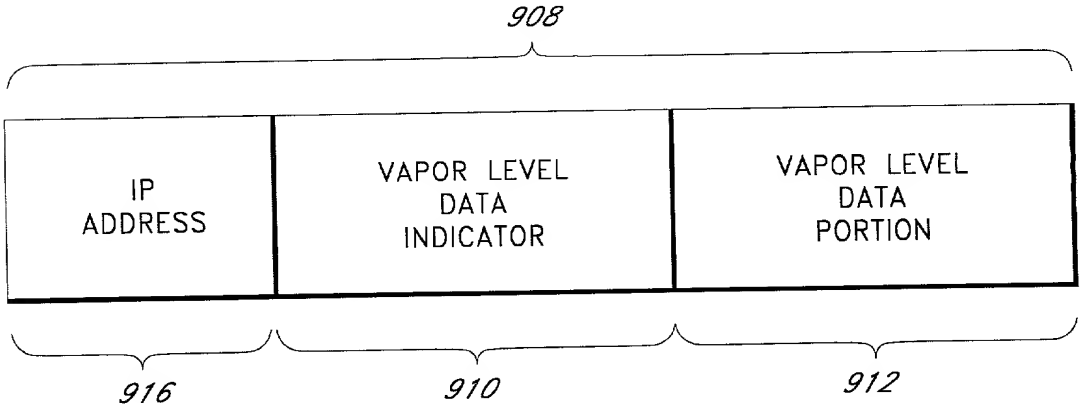

908
IP ADDRESS
VAPOR LEVEL DATA INDICATOR
VAPOR LEVEL DATA PORTION
916
910
912

FIG. 9B

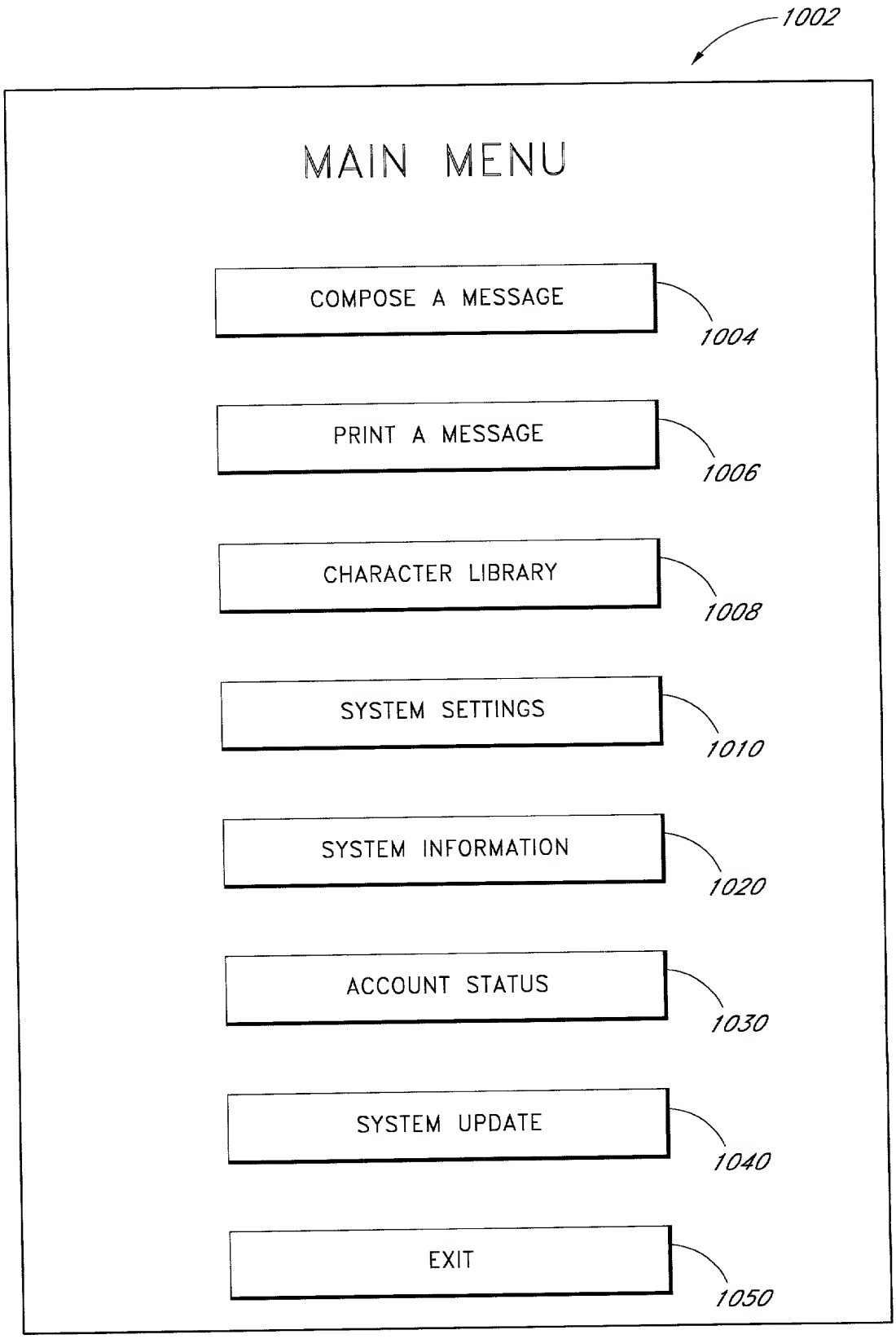

1002
MAIN MENU
COMPOSE A MESSAGE
1004
PRINT A MESSAGE
1006
CHARACTER LIBRARY
1008
SYSTEM SETTINGS
1010
SYSTEM INFORMATION
1020
ACCOUNT STATUS
1030
SYSTEM UPDATE
1040
EXIT
1050

FIG. 10

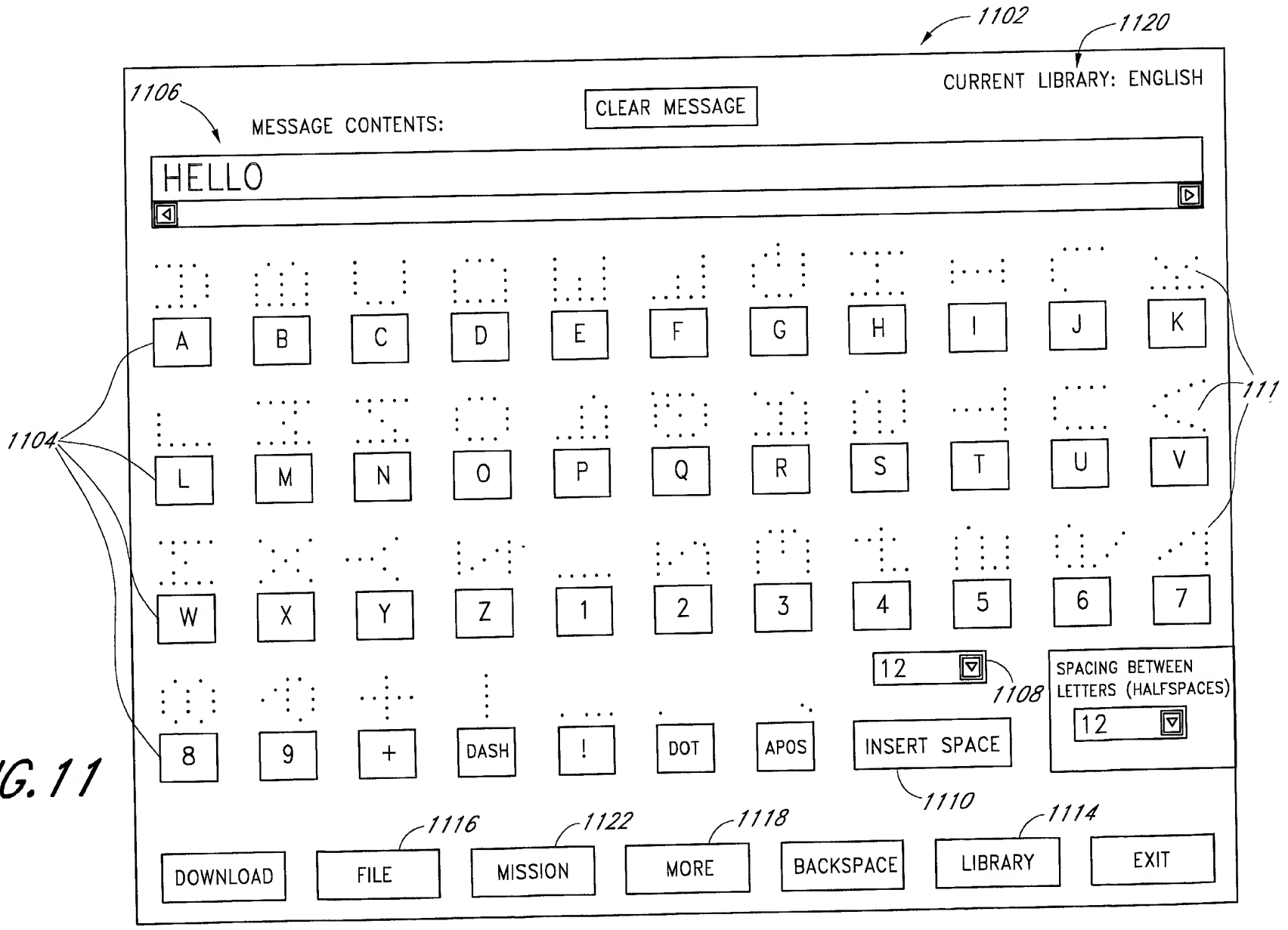

1102
1120
CURRENT LIBRARY: ENGLISH
1106
MESSAGE CONTENTS:
CLEAR MESSAGE
HELLO
A
B
C
D
E
F
G
H
I
J
K
1104
111
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
1
2
3
4
5
6
7
12
1108
SPACING BETWEEN LETTERS (HALFSPACES)
12
8
9
+
DASH
!
DOT
APOS
INSERT SPACE
1110
1116
1122
1118
1114
DOWNLOAD
FILE
MISSION
MORE
BACKSPACE
LIBRARY
EXIT

FIG. 11

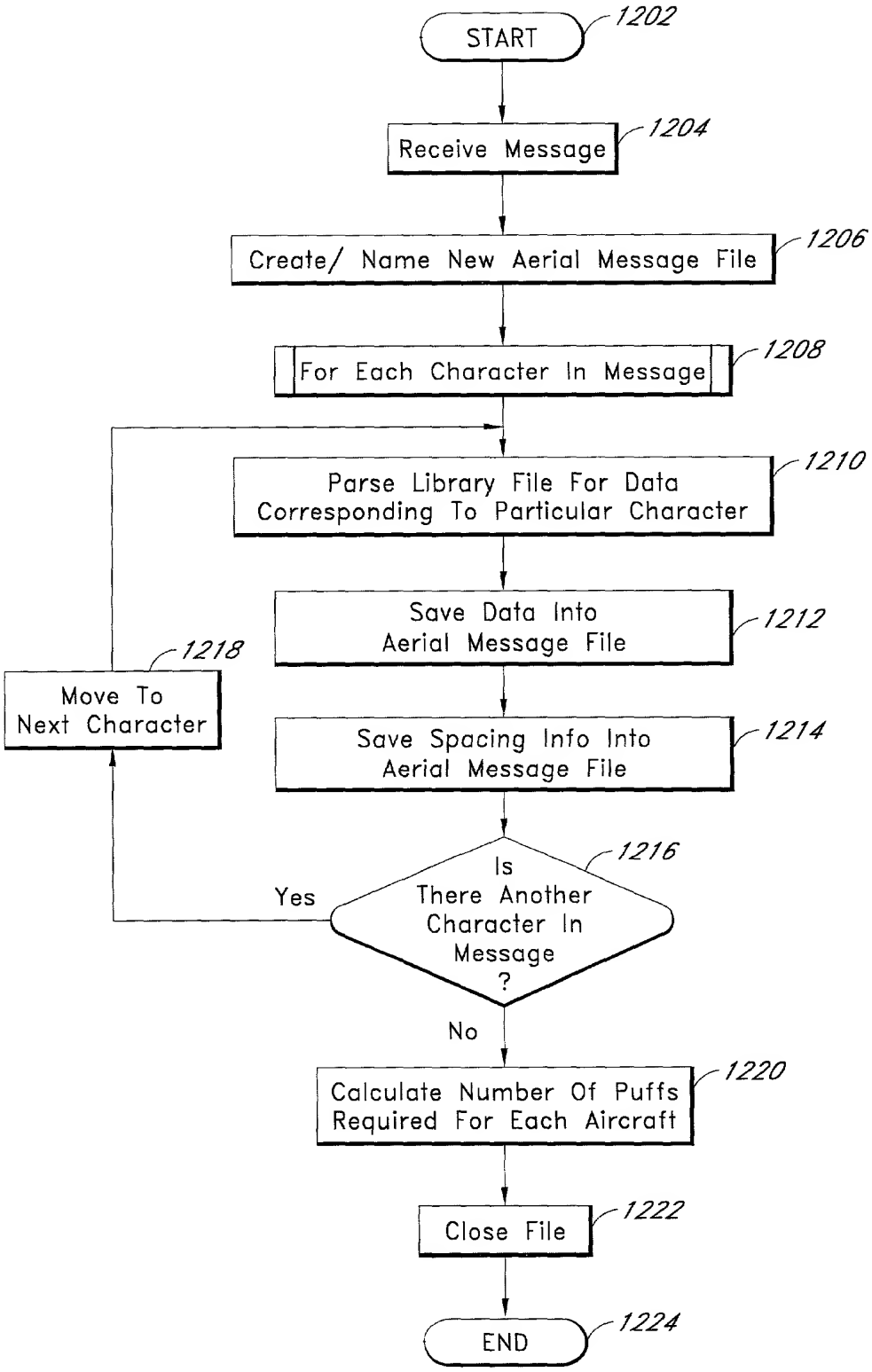

START
1202
Receive Message
1204
Create/ Name New Aerial Message File
1206
For Each Character In Message
1208
Parse Library File For Data Corresponding To Particular Character
1210
Save Data Into Aerial Message File
1212
Save Spacing Info Into Aerial Message File
1214
Is There Another Character In Message ?
1216
Yes
Move To Next Character
1218
No
Calculate Number Of Puffs Required For Each Aircraft
1220
Close File
1222
END
1224

FIG. 12

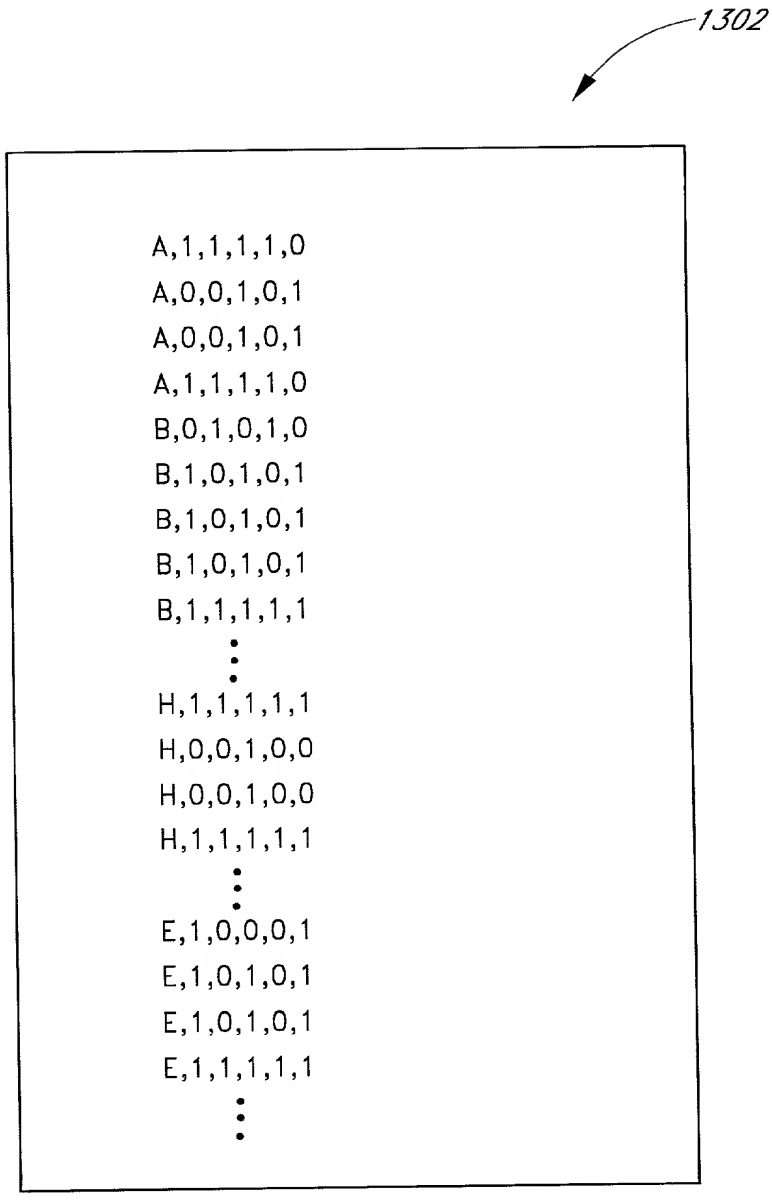

1302
A,1,1,1,1,0
A,0,0,1,0,1
A,0,0,1,0,1
A,1,1,1,1,0
B,0,1,0,1,0
B,1,0,1,0,1
B,1,0,1,0,1
B,1,0,1,0,1
B,1,1,1,1,1
H,1,1,1,1,1
H,0,0,1,0,0
H,0,0,1,0,0
H,1,1,1,1,1
E,1,0,0,0,1
E,1,0,1,0,1
E,1,0,1,0,1
E,1,1,1,1,1

FIG. 13

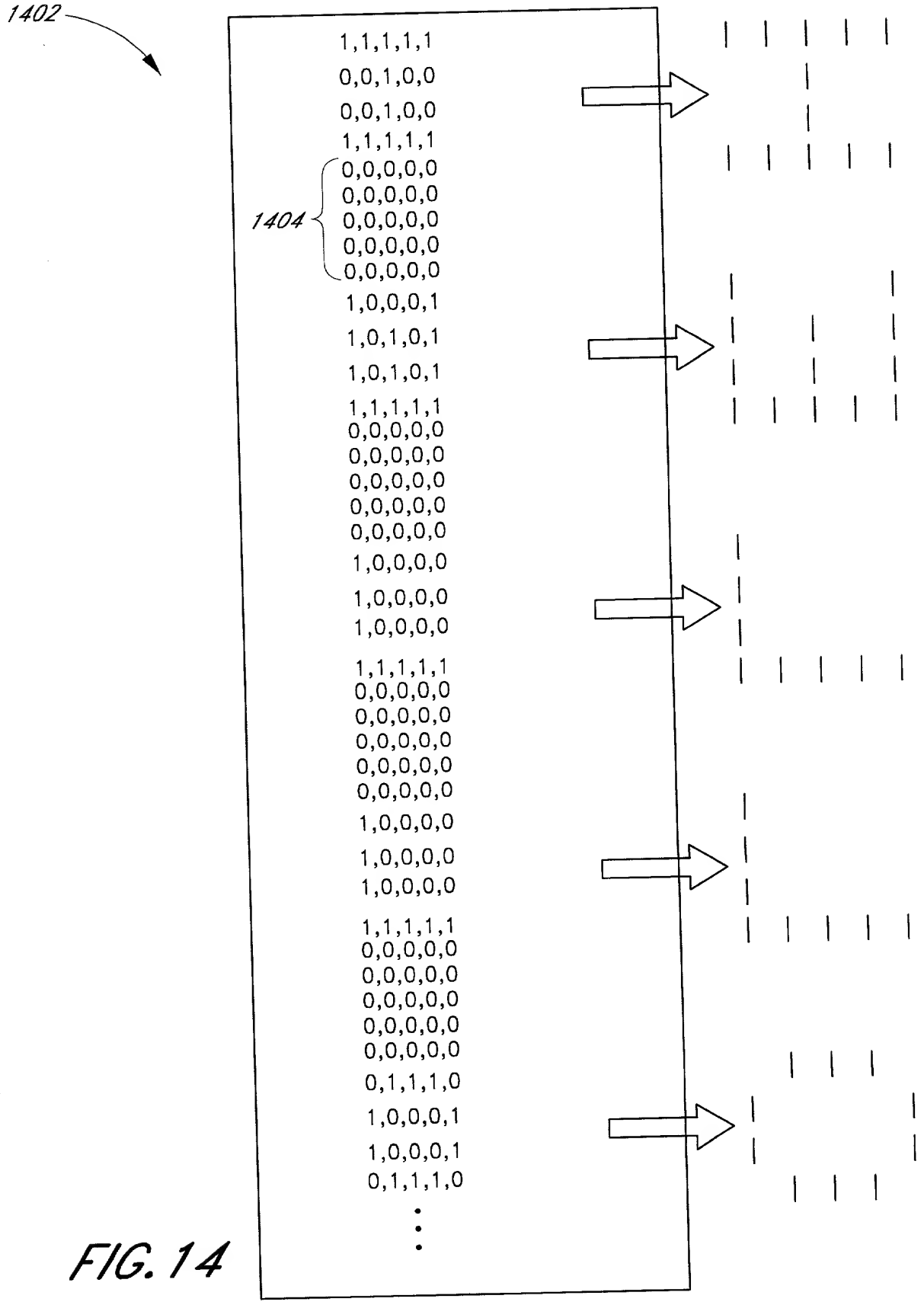
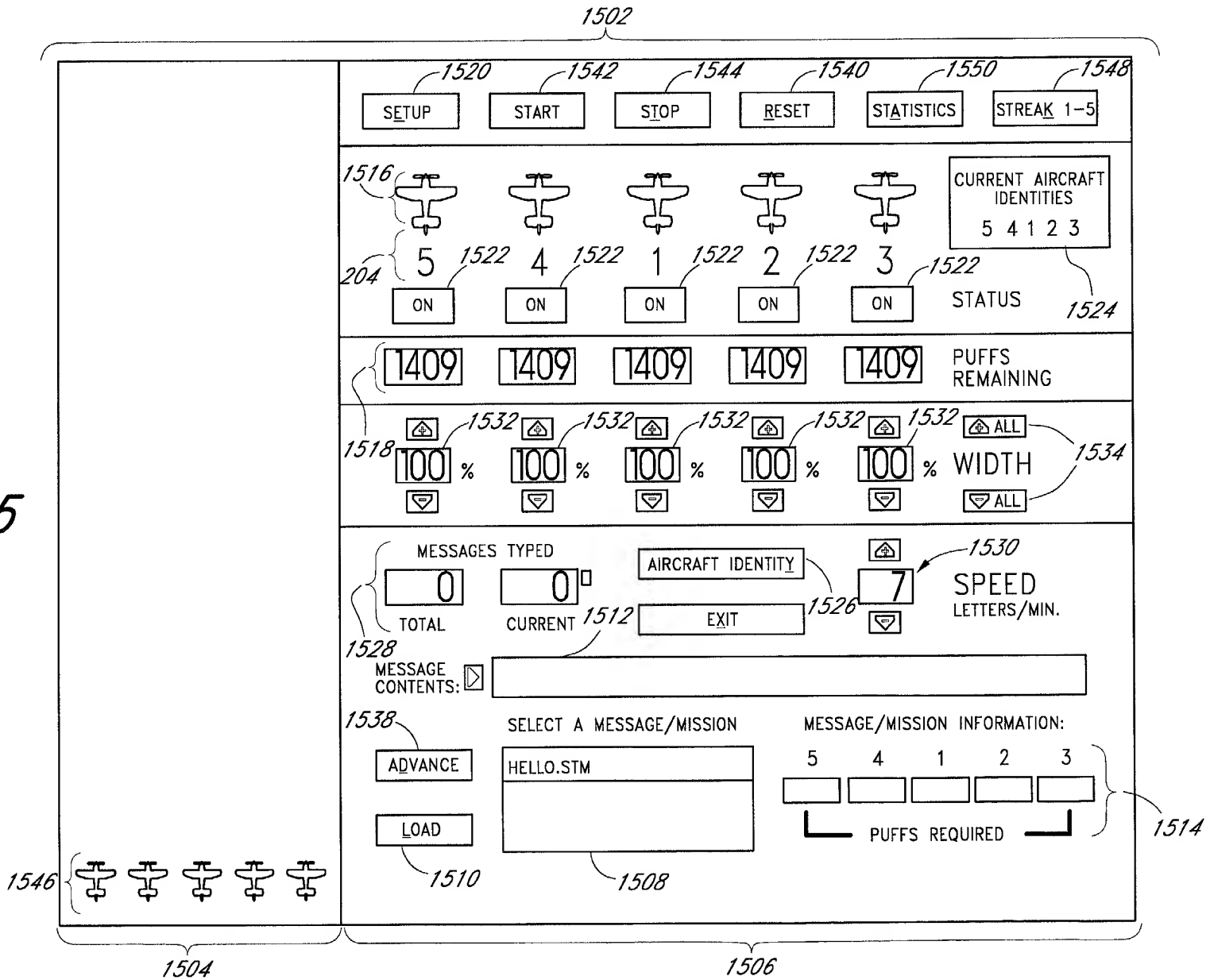

1402
1,1,1,1,1
0,0,1,0,0
0,0,1,0,0
1,1,1,1,1
1404
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
1,0,0,0,1
1,0,1,0,1
1,0,1,0,1
1,1,1,1,1
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
1,0,0,0,0
1,0,0,0,0
1,0,0,0,0
1,1,1,1,1
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
1,0,0,0,0
1,0,0,0,0
1,0,0,0,0
1,1,1,1,1
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,0,0,0,0
0,1,1,1,0
1,0,0,0,1
1,0,0,0,1
0,1,1,1,0

FIG. 14

FIG. 15


1502
1520
1542
1544
1540
1550
1548
SETUP
START
STOP
RESET
STATISTICS
STREAK 1-5
1516
CURRENT AIRCRAFT IDENTITIES
5 4 1 2 3
204
5
4
1
2
3
1522
ON
STATUS
1524
1409
PUFFS REMAINING
1518
1532
100
%
ALL
WIDTH
1534
MESSAGES TYPED
0
TOTAL
CURRENT
AIRCRAFT IDENTITY
EXIT
1526
7
1530
SPEED
LETTERS/MIN.
1528
1512
MESSAGE CONTENTS:
1538
SELECT A MESSAGE/MISSION
MESSAGE/MISSION INFORMATION:
ADVANCE
LOAD
1510
HELLO.STM
1508
PUFFS REQUIRED
1514
1546
1504
1506

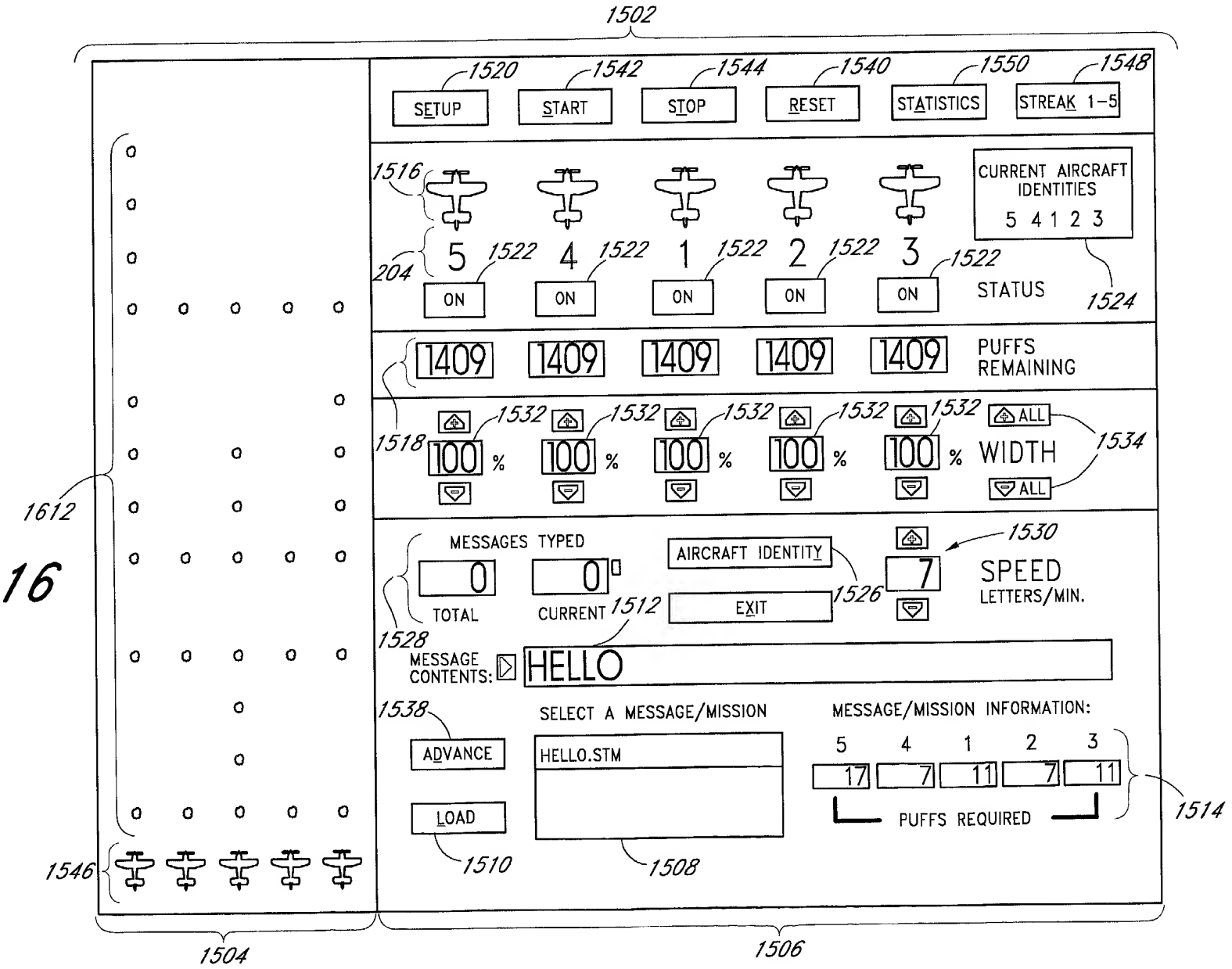

1502
1520
1542
1544
1540
1550
1548
SETUP
START
STOP
RESET
STATISTICS
STREAK 1-5
1516
CURRENT AIRCRAFT IDENTITIES
5 4 1 2 3
204
5 1522
4 1522
1 1522
2 1522
3 1522
ON
ON
ON
ON
ON
STATUS
1524
1409
1409
1409
1409
1409
PUFFS REMAINING
1518
1532
100 %
ALL
WIDTH
1534
1612
MESSAGES TYPED
0
0
TOTAL
CURRENT
AIRCRAFT IDENTITY
EXIT
1526
7
1530
SPEED
LETTERS/MIN.
1528
1512
MESSAGE CONTENTS:
HELLO
1538
SELECT A MESSAGE/MISSION
MESSAGE/MISSION INFORMATION:
ADVANCE
LOAD
1510
HELLO.STM
1508
5 4 1 2 3
17 7 11 7 11
PUFFS REQUIRED
1514
1546
1504
1506

FIG. 16

FIG. 17

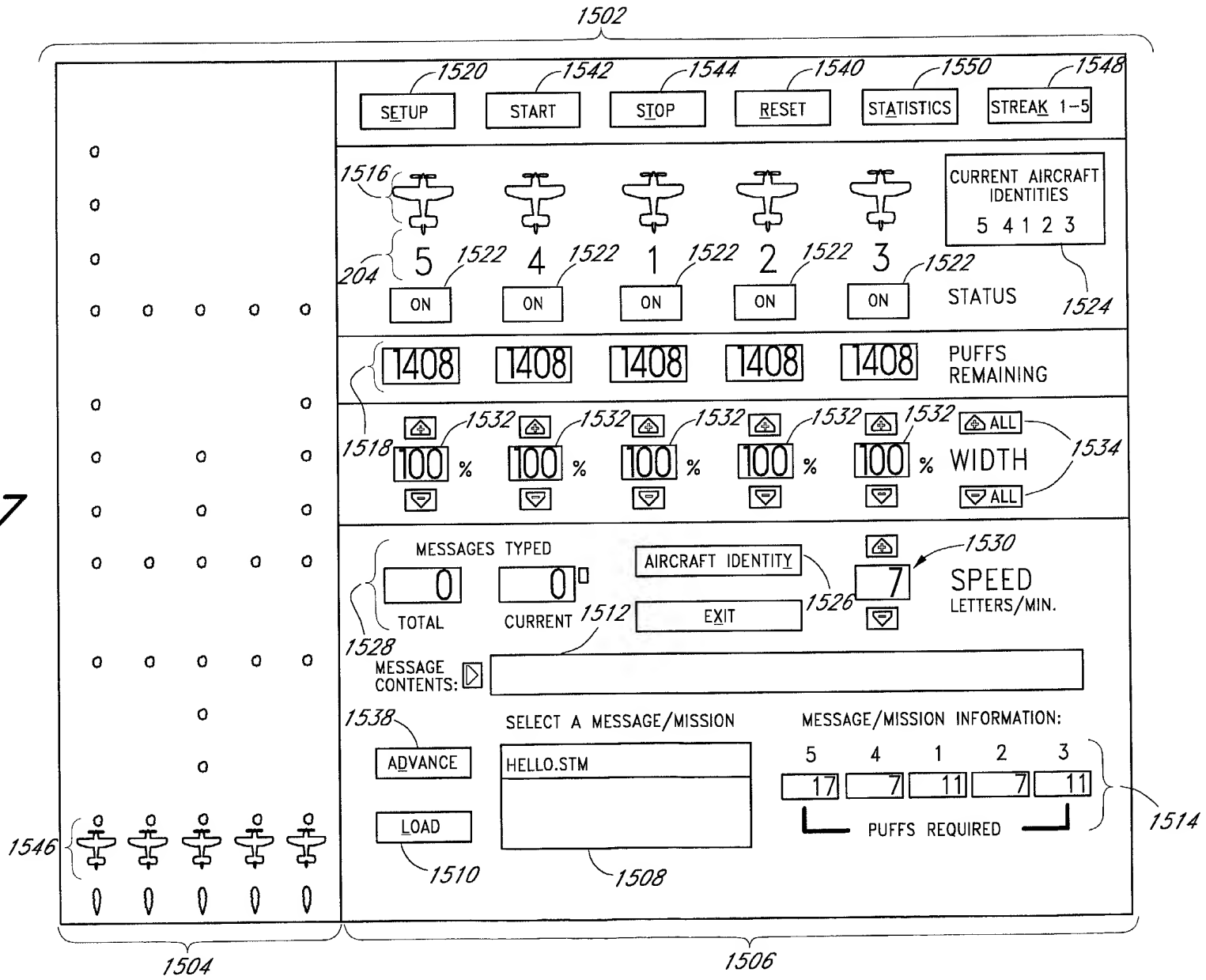
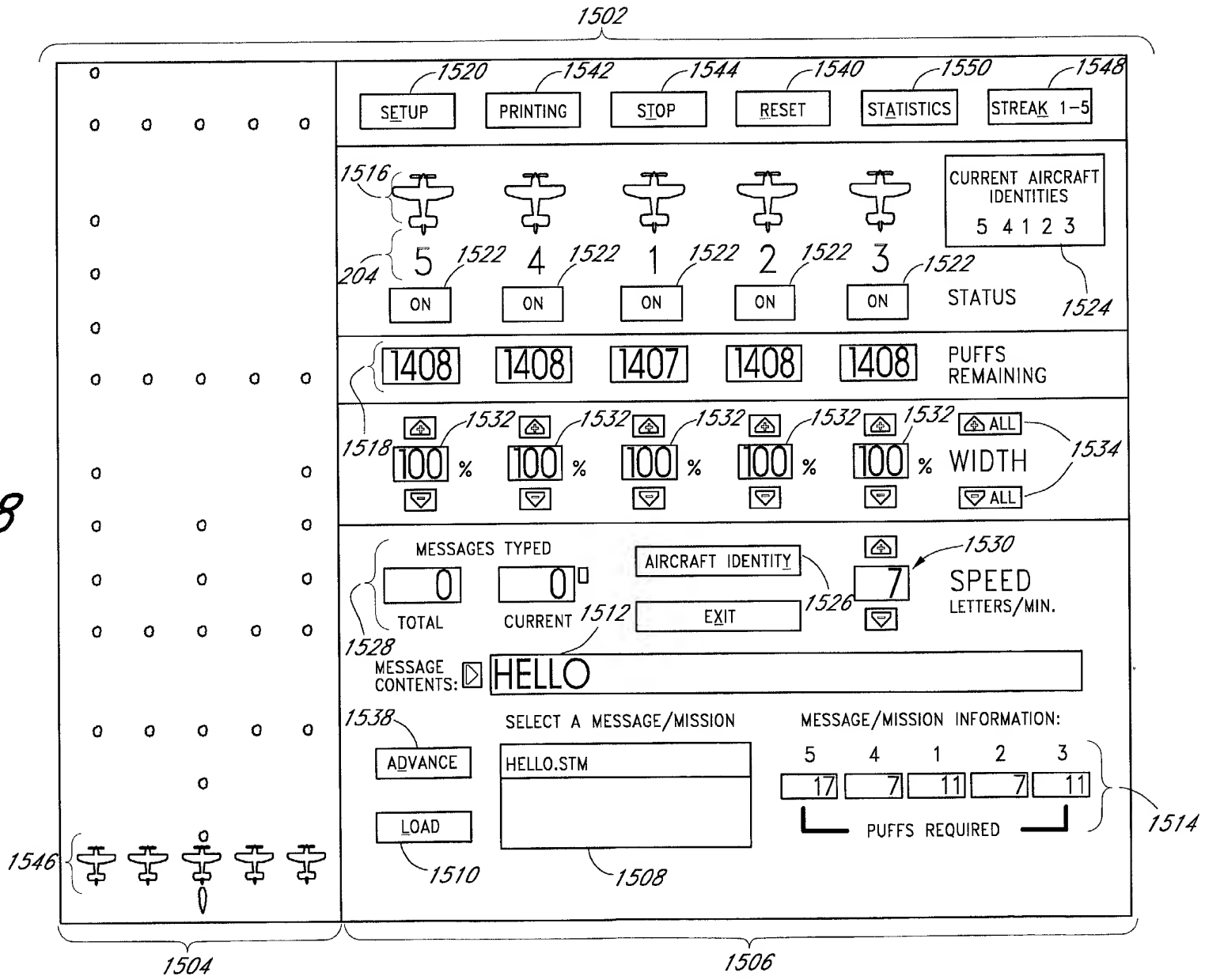

1502
1520
SETUP
1542
START
1544
STOP
1540
RESET
1550
STATISTICS
1548
STREAK 1-5
1516
CURRENT AIRCRAFT IDENTITIES
5 4 1 2 3
204
5
4
1
2
3
1522
ON
STATUS
1524
1408
PUFFS REMAINING
1518
1532
100
%
ALL
WIDTH
1534
MESSAGES TYPED
0
TOTAL
CURRENT
AIRCRAFT IDENTITY
EXIT
1526
1530
SPEED
LETTERS/MIN.
1528
MESSAGE CONTENTS:
1512
1538
ADVANCE
LOAD
1510
SELECT A MESSAGE/MISSION
HELLO.STM
1508
MESSAGE/MISSION INFORMATION:
17
7
11
PUFFS REQUIRED
1514
1546
1504
1506

FIG. 18


1502
1520
1542
1544
1540
1550
1548
SETUP
PRINTING
STOP
RESET
STATISTICS
STREAK 1-5
1516
CURRENT AIRCRAFT IDENTITIES
5 4 1 2 3
204
5
4
1
2
3
1522
ON
STATUS
1524
1408
1408
1407
1408
1408
PUFFS REMAINING
1518
100
%
1532
ALL
WIDTH
1534
MESSAGES TYPED
0
TOTAL
CURRENT
AIRCRAFT IDENTITY
EXIT
1526
7
1530
SPEED
LETTERS/MIN.
1528
MESSAGE CONTENTS:
1512
HELLO
1538
ADVANCE
LOAD
1510
SELECT A MESSAGE/MISSION
HELLO.STM
1508
MESSAGE/MISSION INFORMATION:
17
11
PUFFS REQUIRED
1514
1546
1504
1506

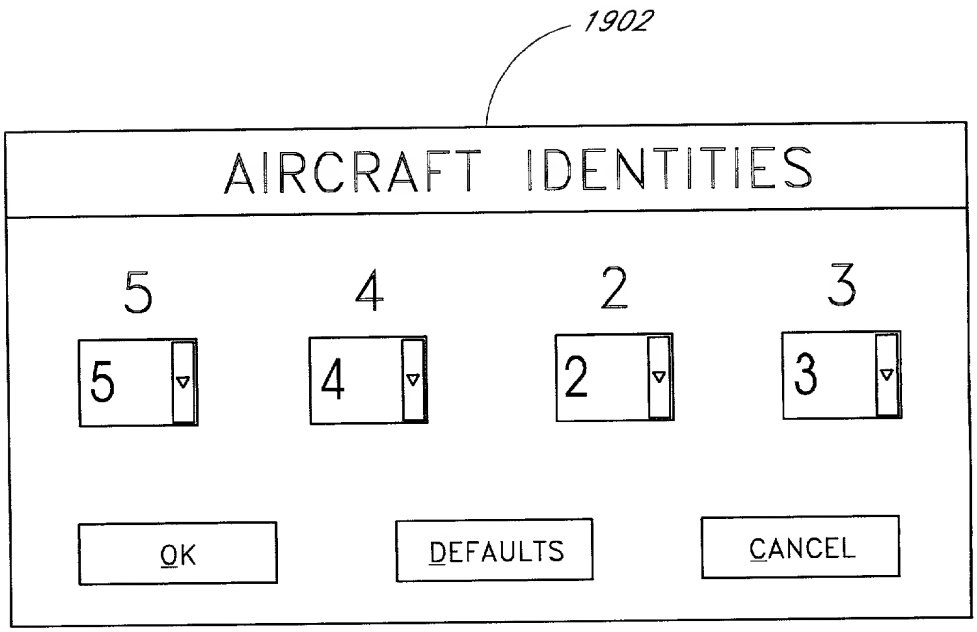


FIG. 19A

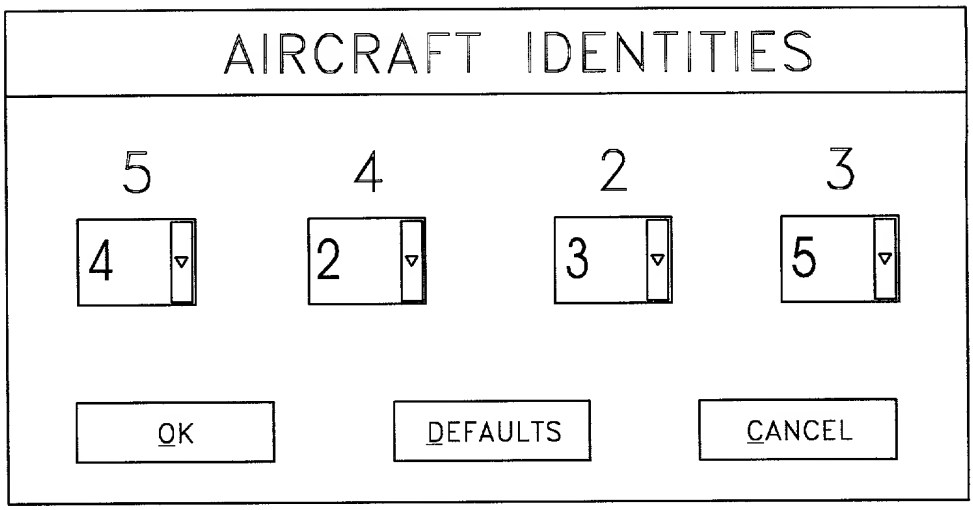
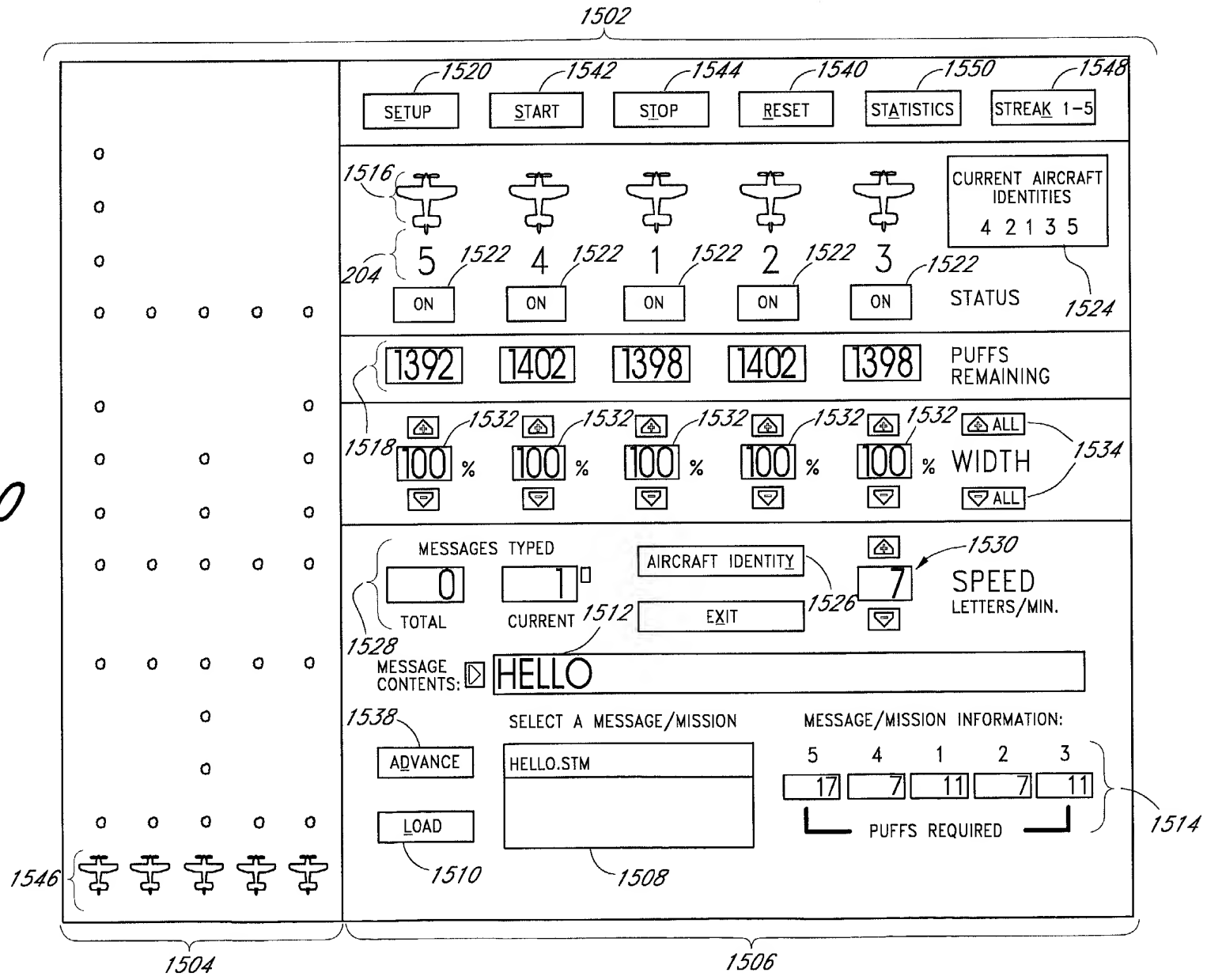


FIG. 19B

FIG.20


1502
1520
1542
1544
1540
1550
1548
SETUP
START
STOP
RESET
STATISTICS
STREAK 1-5
1516
CURRENT AIRCRAFT IDENTITIES
4 2 1 3 5
204
5
4
1
2
3
1522
ON
STATUS
1524
1392
1402
1398
1402
1398
PUFFS REMAINING
1518
1532
100
%
ALL
WIDTH
1534
MESSAGES TYPED
0
1
TOTAL
CURRENT
AIRCRAFT IDENTITY
EXIT
1526
1530
7
SPEED
LETTERS/MIN.
1528
1512
MESSAGE CONTENTS:
HELLO
1538
SELECT A MESSAGE/MISSION
MESSAGE/MISSION INFORMATION:
ADVANCE
LOAD
1510
HELLO.STM
1508
17
7
11
7
11
PUFFS REQUIRED
1514
1546
1504
1506

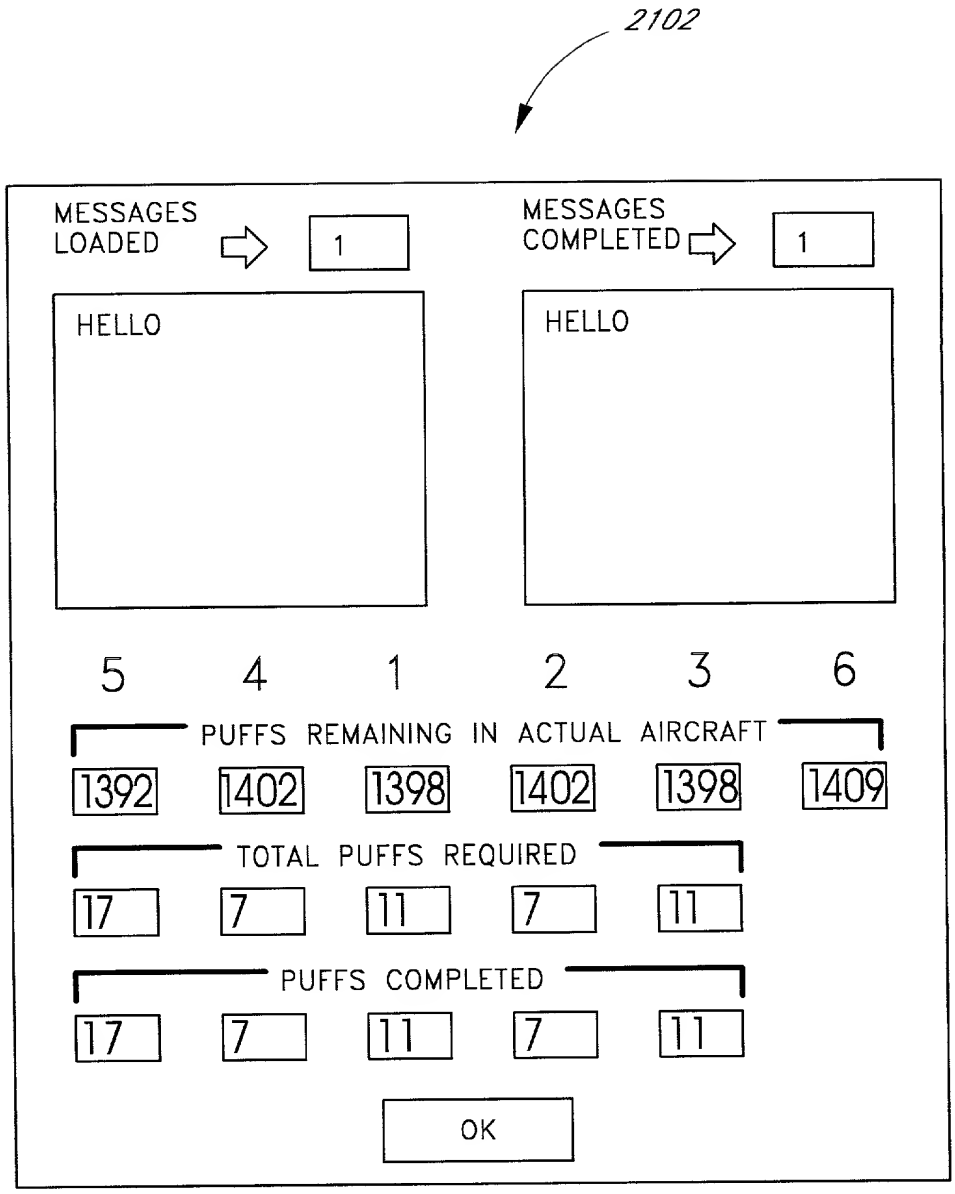

2102
MESSAGES LOADED
1
MESSAGES COMPLETED
1
HELLO
HELLO
5
4
1
2
3
6
PUFFS REMAINING IN ACTUAL AIRCRAFT
1392
1402
1398
1402
1398
1409
TOTAL PUFFS REQUIRED
17
7
11
7
11
PUFFS COMPLETED
17
7
11
7
11
OK

FIG. 21

FIG. 22

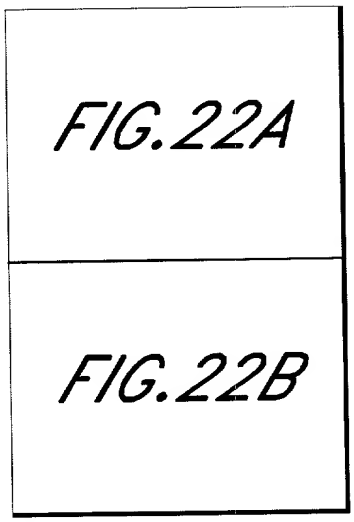
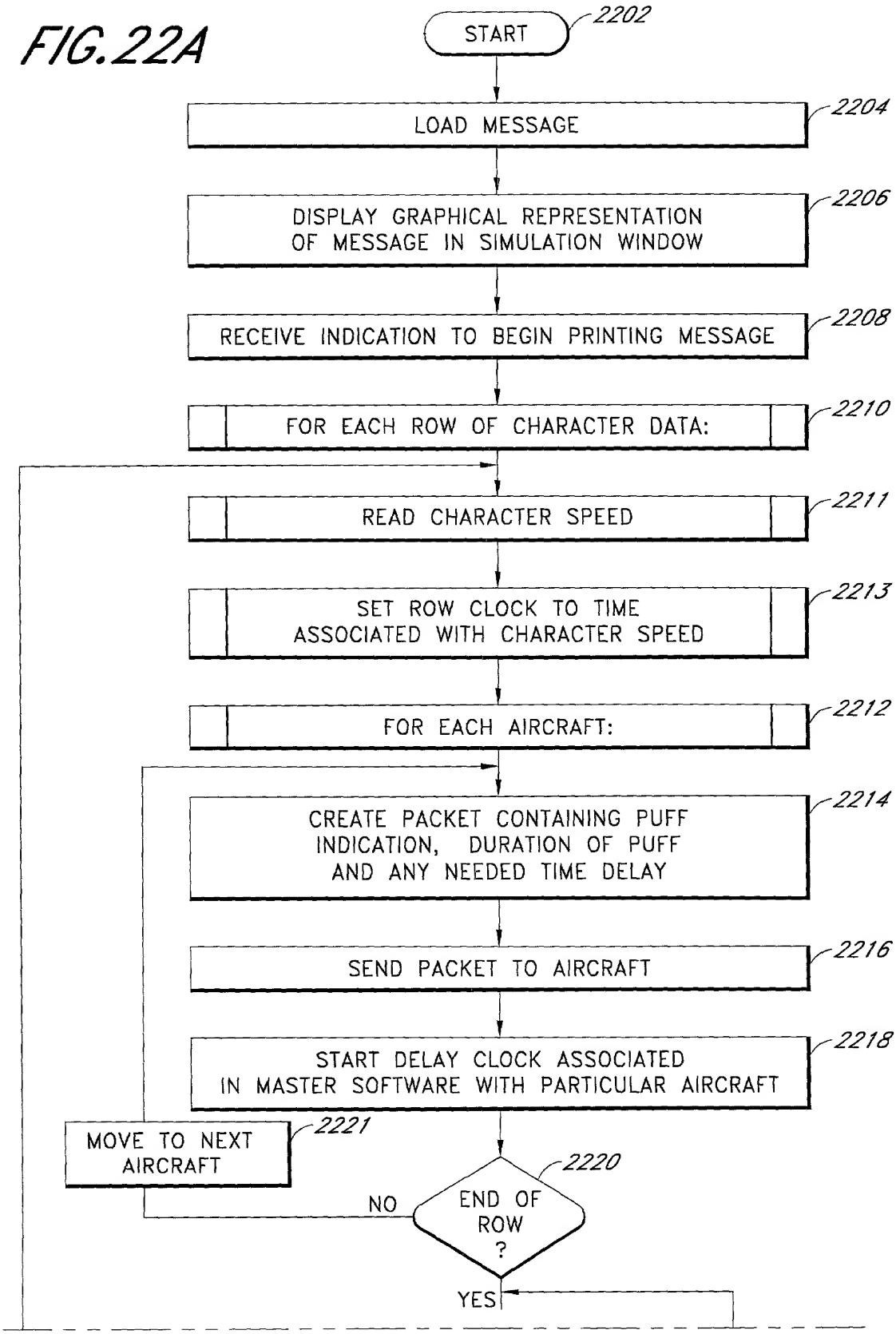


FIG. 22A


START
2202
LOAD MESSAGE
2204
DISPLAY GRAPHICAL REPRESENTATION OF MESSAGE IN SIMULATION WINDOW
2206
RECEIVE INDICATION TO BEGIN PRINTING MESSAGE
2208
FOR EACH ROW OF CHARACTER DATA:
2210
READ CHARACTER SPEED
2211
SET ROW CLOCK TO TIME ASSOCIATED WITH CHARACTER SPEED
2213
FOR EACH AIRCRAFT:
2212
CREATE PACKET CONTAINING PUFF INDICATION, DURATION OF PUFF AND ANY NEEDED TIME DELAY
2214
SEND PACKET TO AIRCRAFT
2216
START DELAY CLOCK ASSOCIATED IN MASTER SOFTWARE WITH PARTICULAR AIRCRAFT
2218
MOVE TO NEXT AIRCRAFT
2221
END OF ROW ?
2220
NO
YES

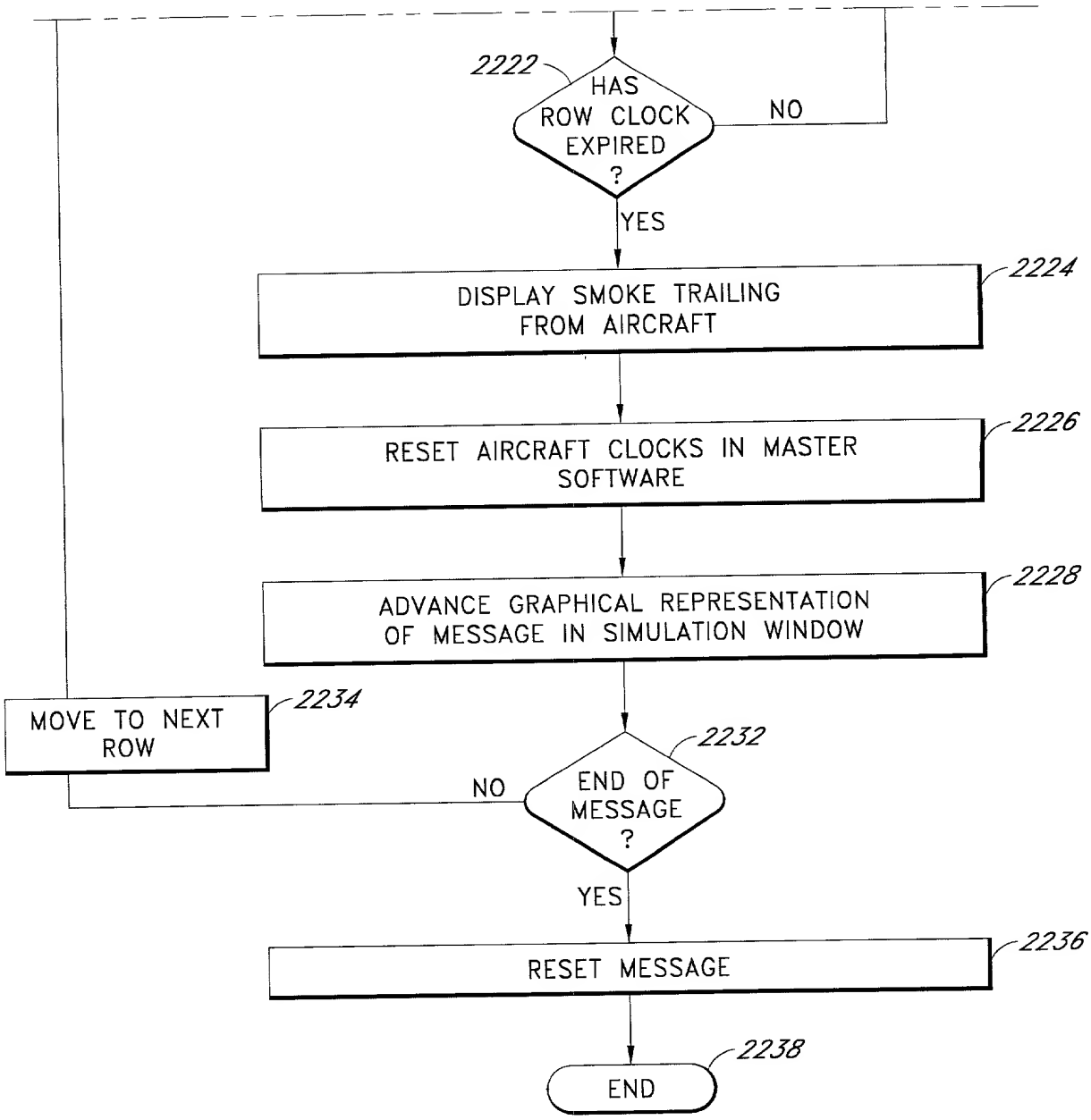

2222
HAS ROW CLOCK EXPIRED ?
NO
YES
2224
DISPLAY SMOKE TRAILING FROM AIRCRAFT
2226
RESET AIRCRAFT CLOCKS IN MASTER SOFTWARE
2228
ADVANCE GRAPHICAL REPRESENTATION OF MESSAGE IN SIMULATION WINDOW
2234
MOVE TO NEXT ROW
2232
NO
END OF MESSAGE ?
YES
2236
RESET MESSAGE
2238
END

FIG. 22B

US 6,950,534 B2

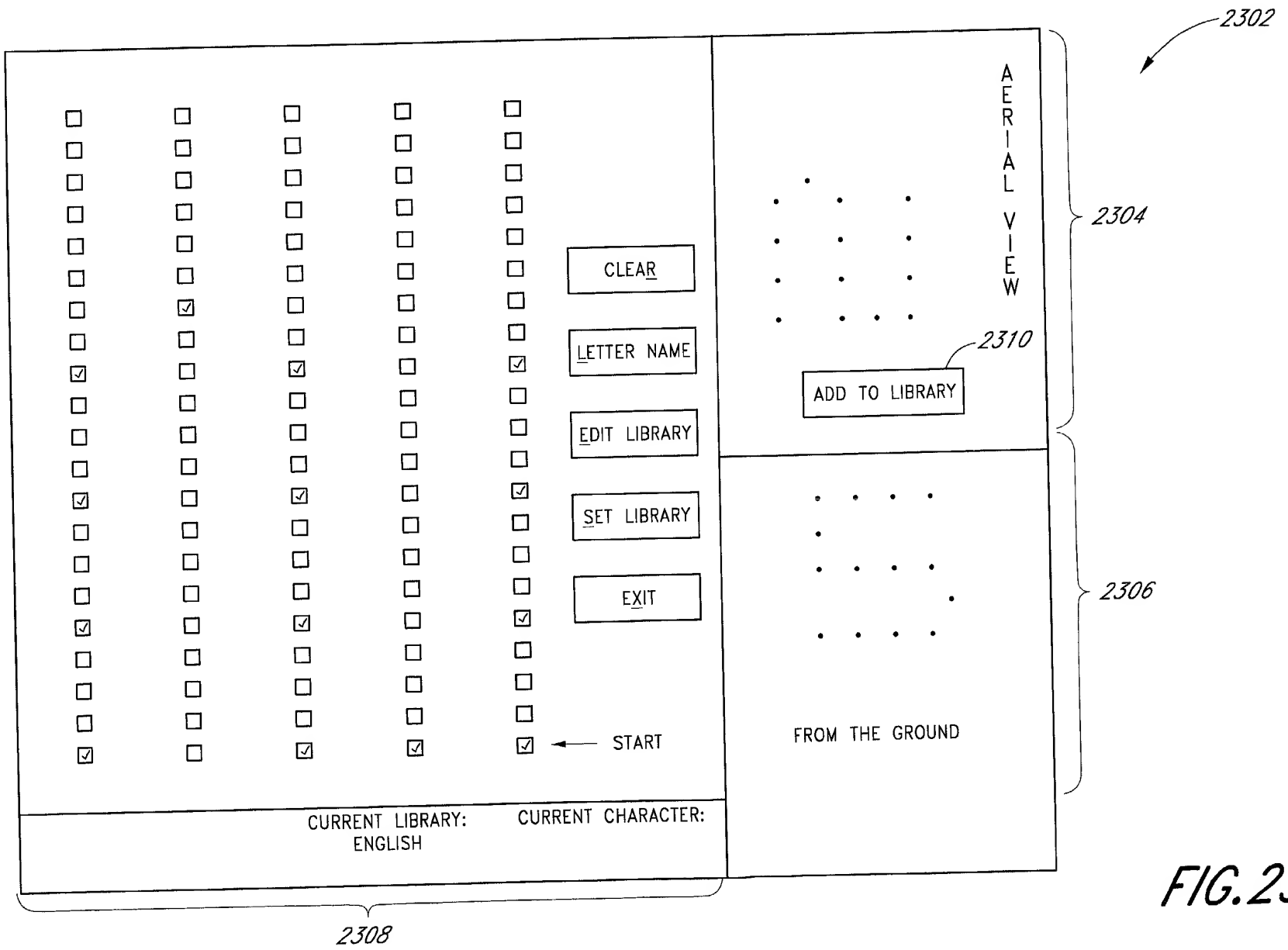


FIG. 23

US009542385B2

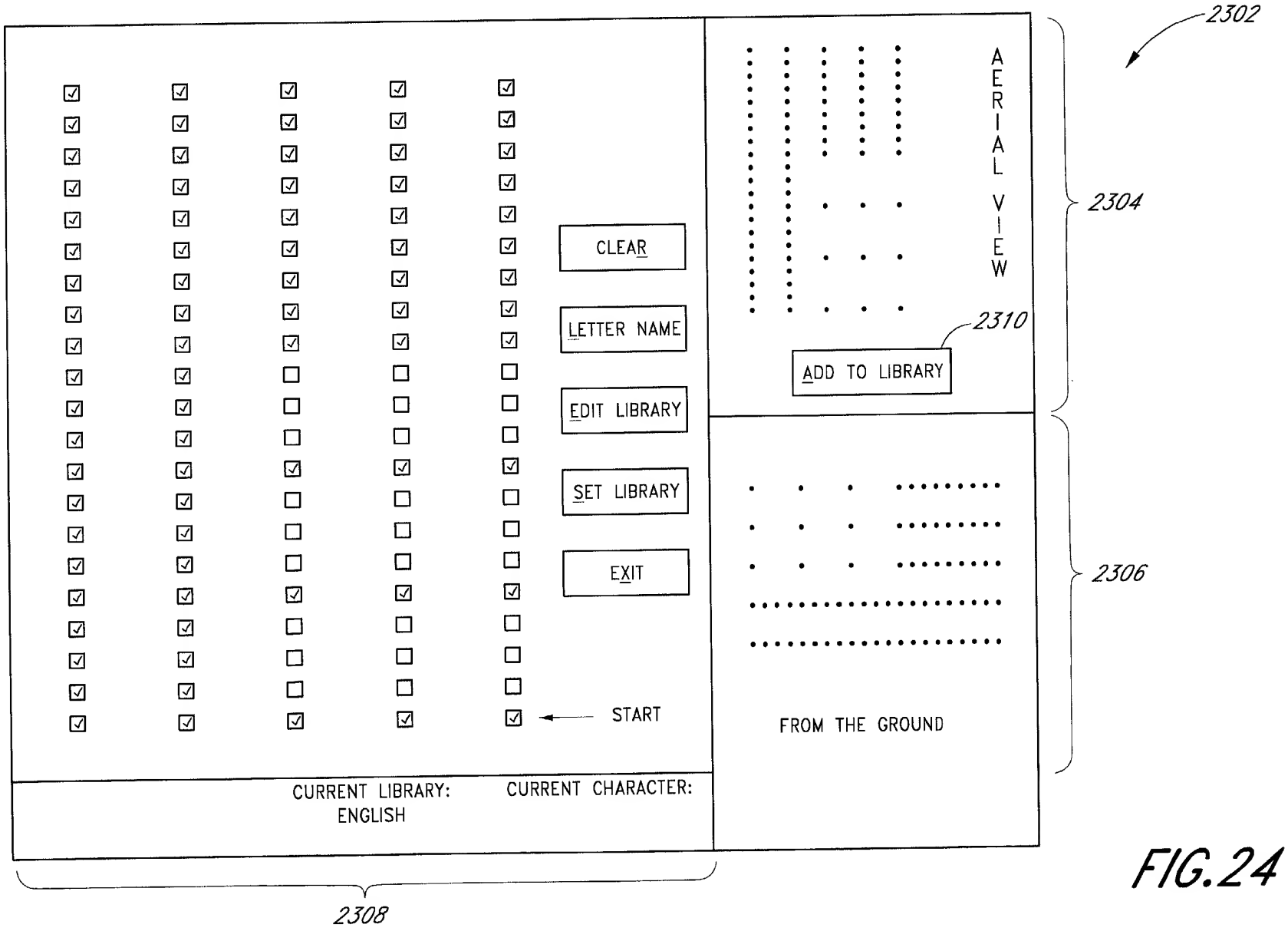


FIG. 24

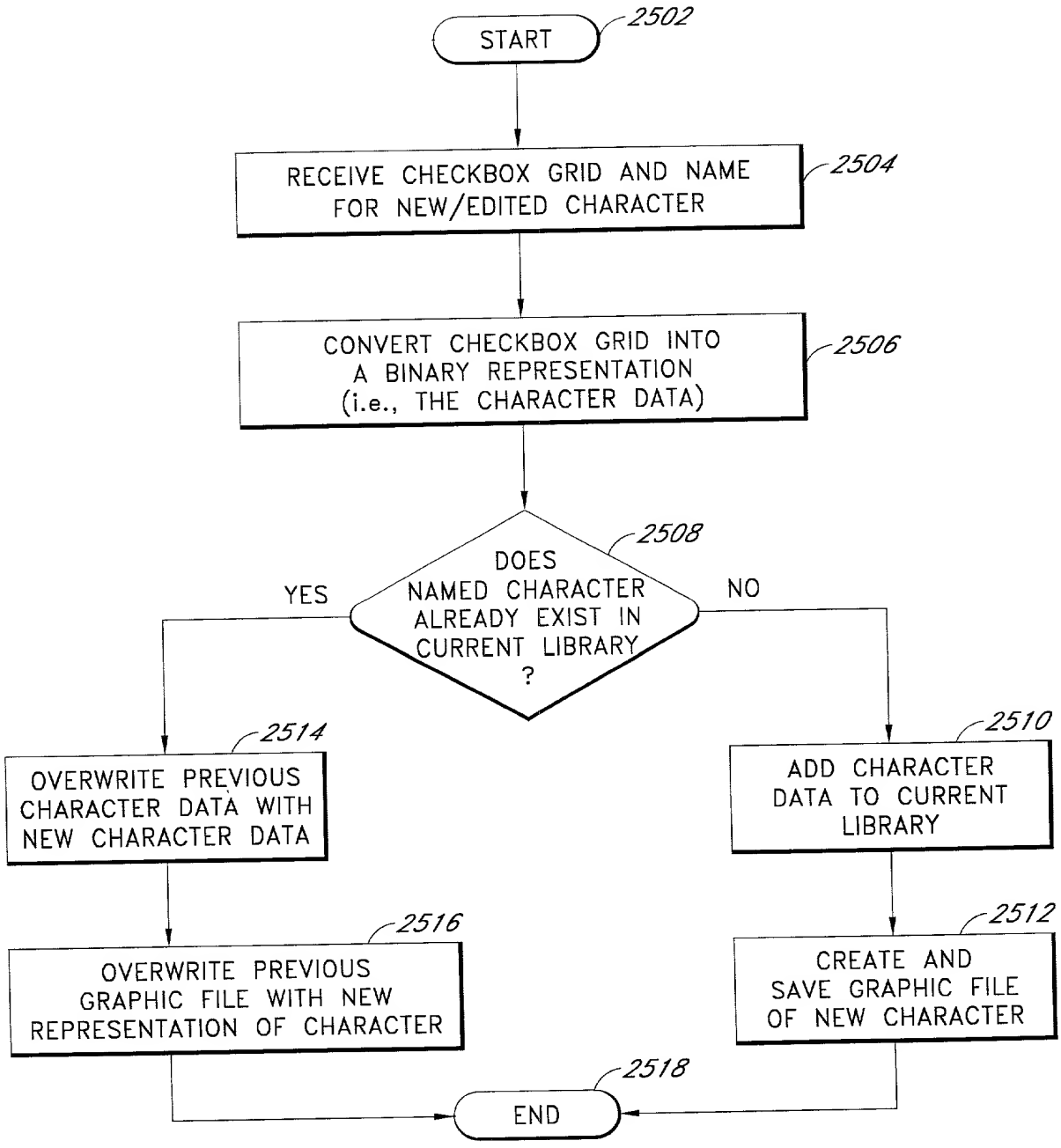

START
2502
RECEIVE CHECKBOX GRID AND NAME FOR NEW/EDITED CHARACTER
2504
CONVERT CHECKBOX GRID INTO A BINARY REPRESENTATION (i.e., THE CHARACTER DATA)
2506
DOES NAMED CHARACTER ALREADY EXIST IN CURRENT LIBRARY ?
2508
YES
NO
OVERWRITE PREVIOUS CHARACTER DATA WITH NEW CHARACTER DATA
2514
ADD CHARACTER DATA TO CURRENT LIBRARY
2510
OVERWRITE PREVIOUS GRAPHIC FILE WITH NEW REPRESENTATION OF CHARACTER
2516
CREATE AND SAVE GRAPHIC FILE OF NEW CHARACTER
2512
END
2518

FIG. 25

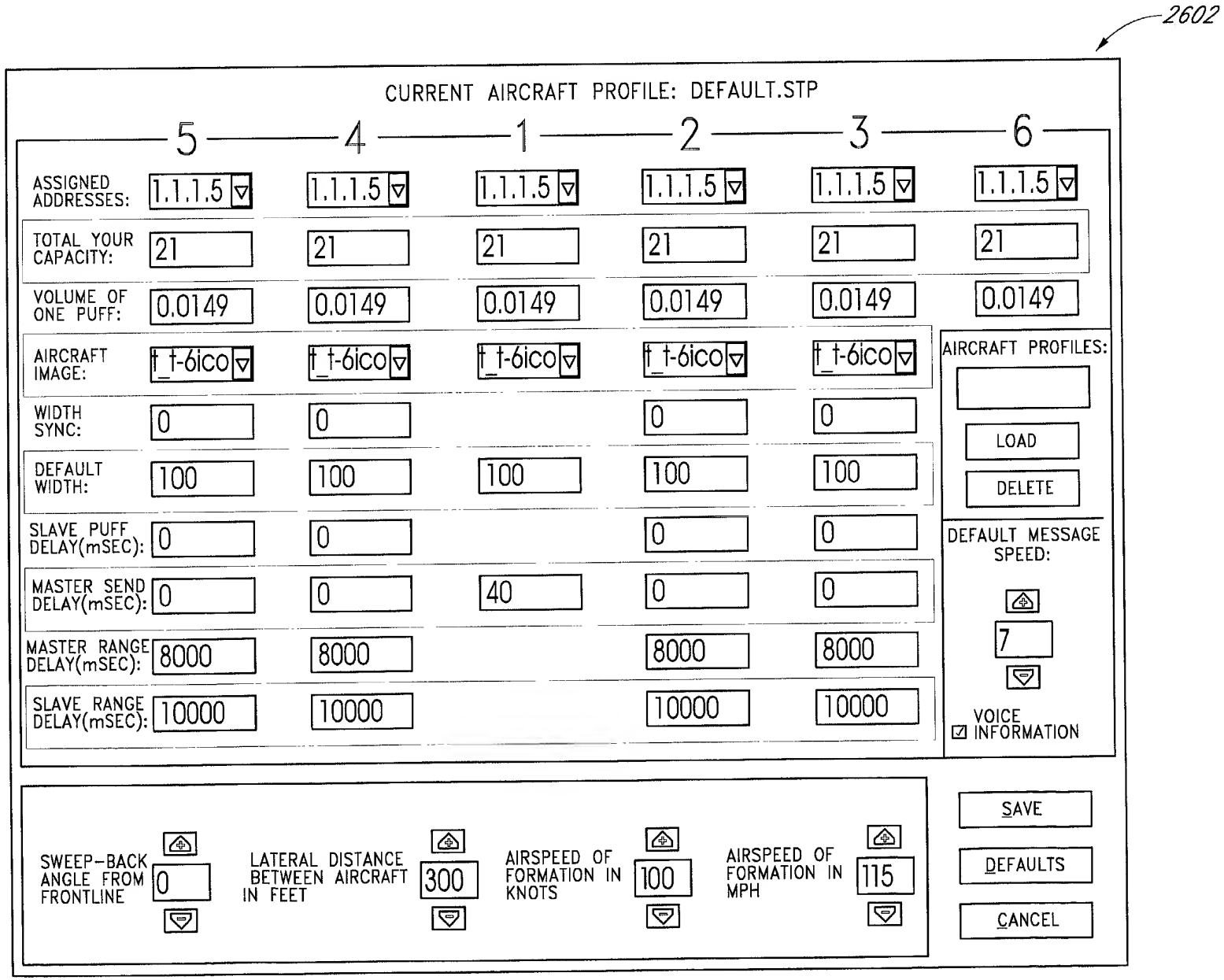

2602
CURRENT AIRCRAFT PROFILE: DEFAULT.STP
5
4
1
2
3
6
ASSIGNED ADDRESSES:
1.1.1.5
TOTAL YOUR CAPACITY:
21
VOLUME OF ONE PUFF:
0.0149
AIRCRAFT IMAGE:
f_f-6ico
WIDTH SYNC:
0
DEFAULT WIDTH:
100
SLAVE PUFF DELAY(mSEC):
0
MASTER SEND DELAY(mSEC):
40
MASTER RANGE DELAY(mSEC):
8000
SLAVE RANGE DELAY(mSEC):
10000
AIRCRAFT PROFILES:
LOAD
DELETE
DEFAULT MESSAGE SPEED:
7
VOICE INFORMATION
SWEEP-BACK ANGLE FROM FRONTLINE
LATERAL DISTANCE BETWEEN AIRCRAFT IN FEET
300
AIRSPEED OF FORMATION IN KNOTS
100
AIRSPEED OF FORMATION IN MPH
115
SAVE
DEFAULTS
CANCEL

FIG. 26

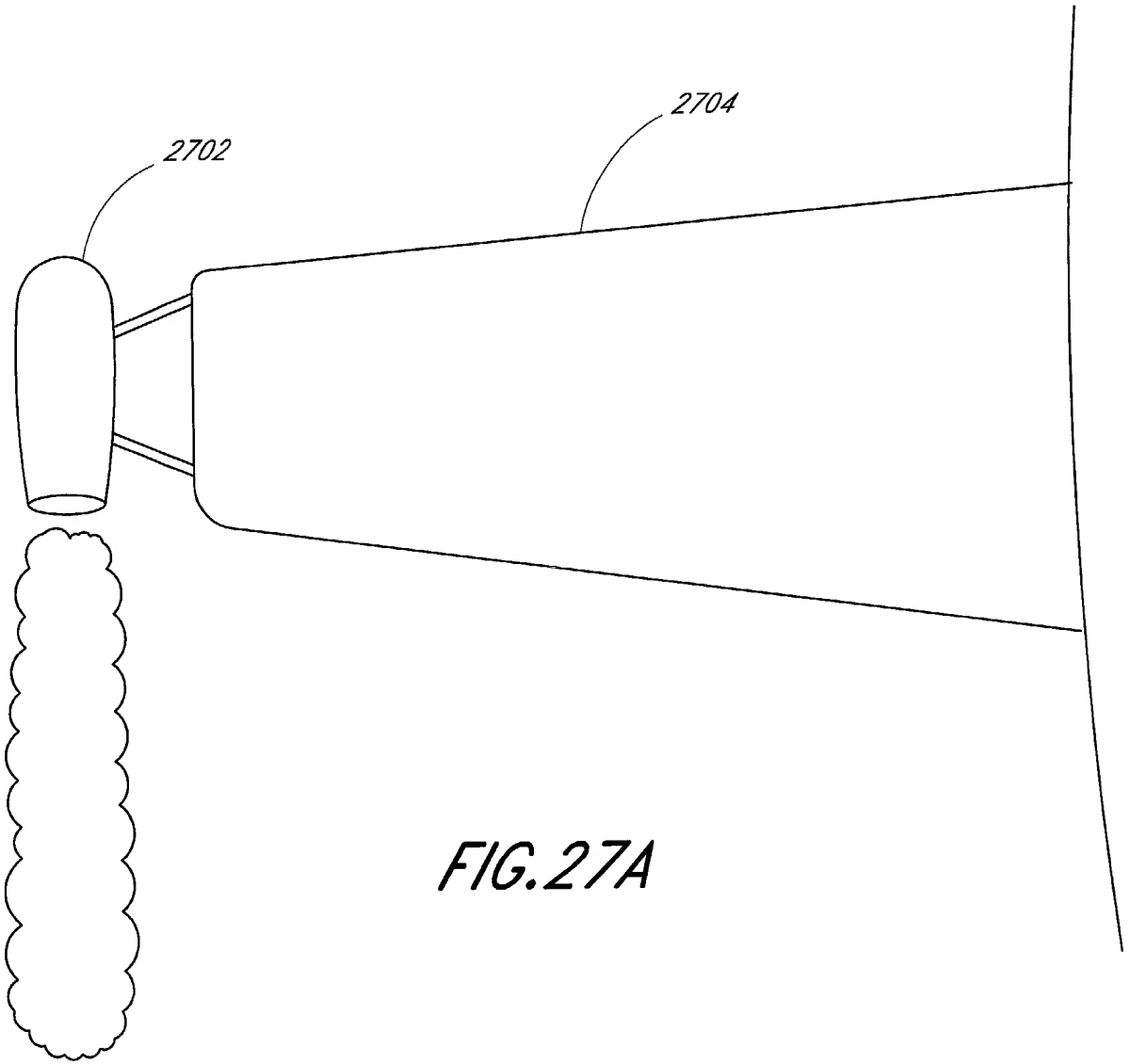


FIG. 27A

TAGGED SEALED

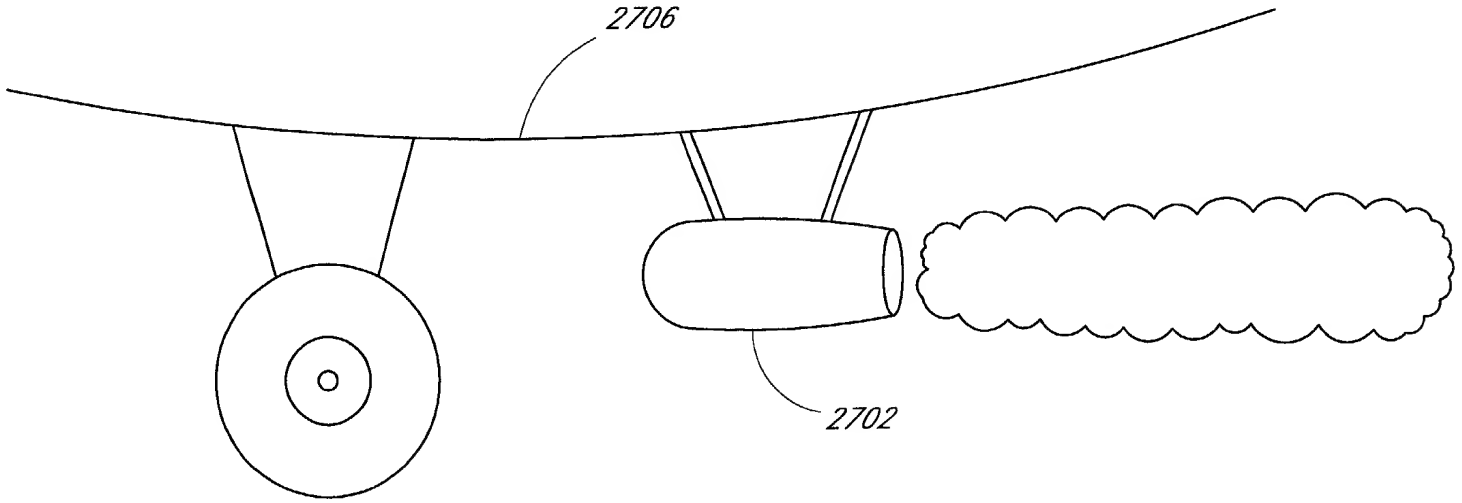


FIG. 27B

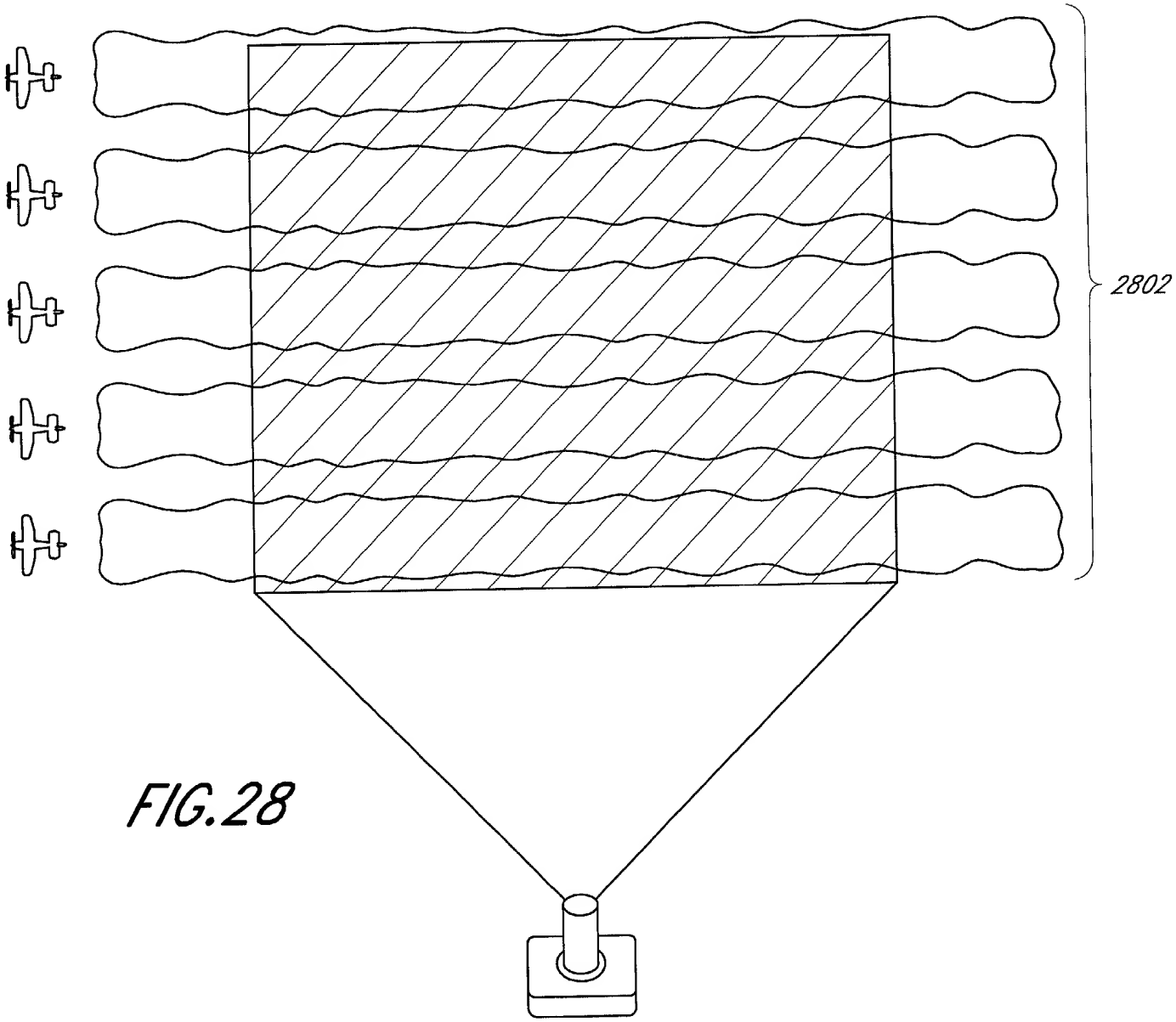


FIG. 28

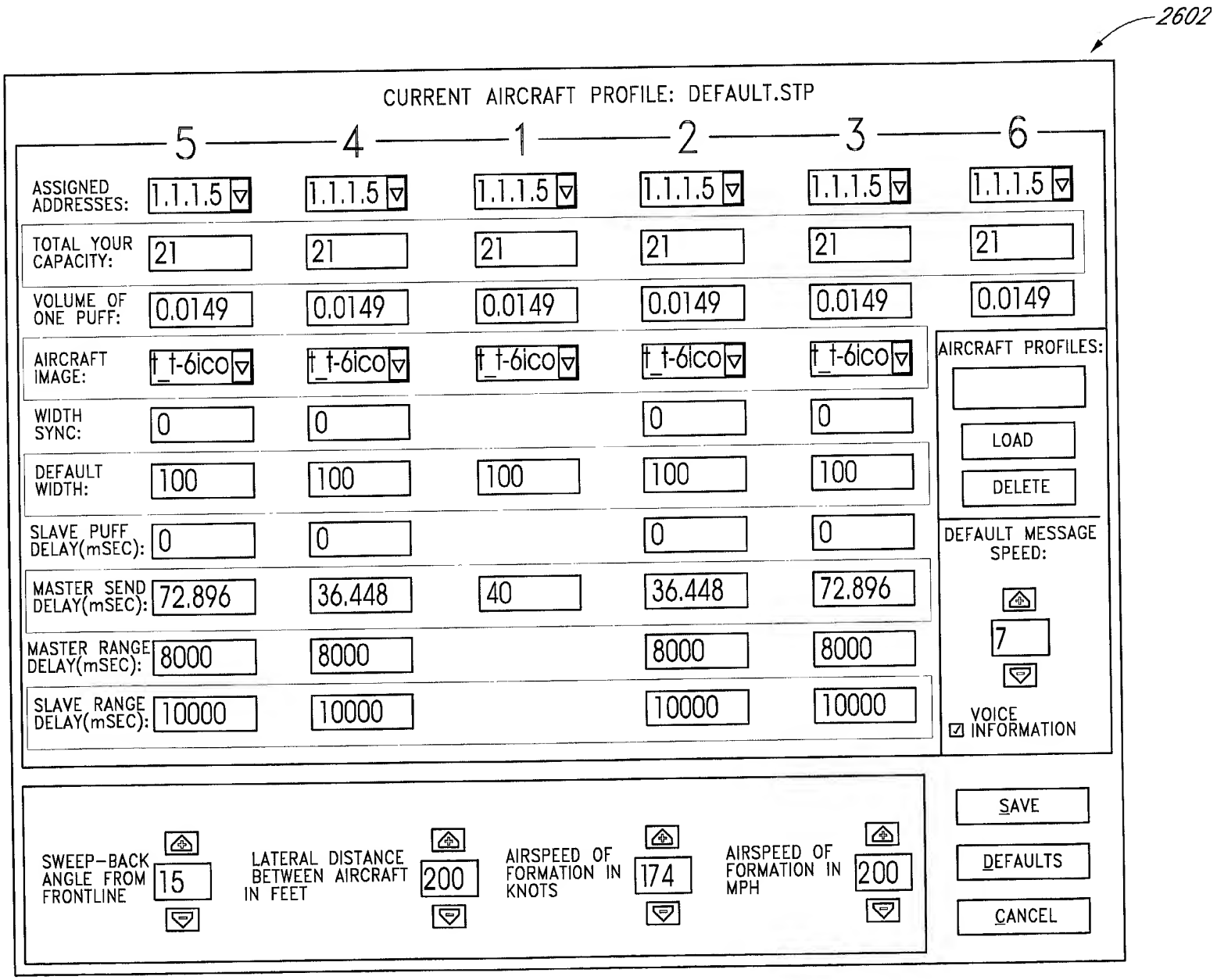

2602
CURRENT AIRCRAFT PROFILE: DEFAULT.STP
5
4
1
2
3
6
ASSIGNED ADDRESSES:
1.1.1.5
TOTAL YOUR CAPACITY:
21
VOLUME OF ONE PUFF:
0.0149
AIRCRAFT IMAGE:
f_f-6ico
WIDTH SYNC:
0
DEFAULT WIDTH:
100
SLAVE PUFF DELAY(mSEC):
0
MASTER SEND DELAY(mSEC):
72.896
36.448
40
MASTER RANGE DELAY(mSEC):
8000
SLAVE RANGE DELAY(mSEC):
10000
AIRCRAFT PROFILES:
LOAD
DELETE
DEFAULT MESSAGE SPEED:
7
VOICE INFORMATION
SWEEP-BACK ANGLE FROM FRONTLINE
15
LATERAL DISTANCE BETWEEN AIRCRAFT IN FEET
200
AIRSPEED OF FORMATION IN KNOTS
174
AIRSPEED OF FORMATION IN MPH
200
SAVE
DEFAULTS
CANCEL

FIG. 29